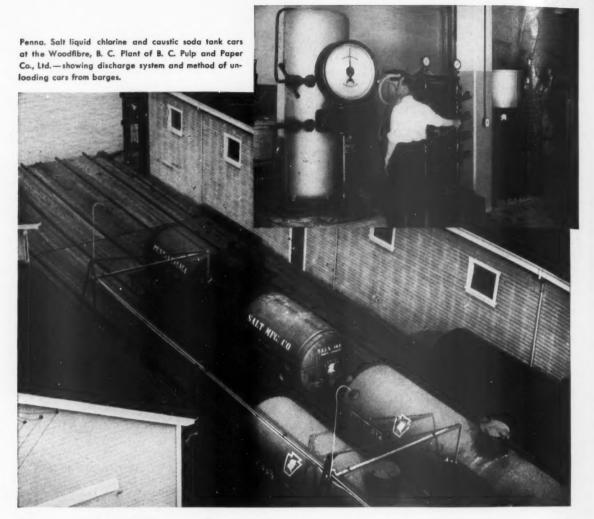


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New Woodfibre plant of B. C. Pulp & Paper Company uses Pennsylvania Salt's Liquid Chlorine . . .

THE new bleach plant at Woodfibre, B. C., is as modern as the newest equipment and advanced methods can make it. The plant was installed by the Pulp Bleaching Corporation, whose latest ideas for the bleaching of sulphite pulp have been incorporated.

Following its conversion from an unbleached sulphite mill to a unit devoted to bleaching, this new plant has been a consistent user of the liquid chlorine produced by Pennsylvania Salt Manufacturing Company. This is natural, for the B. C. Pulp & Paper Company has long used this Company's liquid chlorine and caustic soda at its Port Alice plant, where it is using the Pennsylvania Salt Manufacturing Company's Chlorine Dispersion Method.*

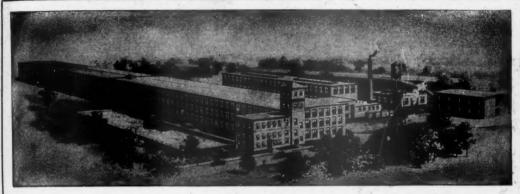
PENNSYLVANIA SALT MFG. CO. OF WASHINGTON TACOMA, WASHINGTON



PENNSYLVANIA SALT MANUFACTURING COMPANY NEMICALS

* U. S. Patent 1,971,241 dated August 21,1934. Also fully protected in 12 foreign countries.





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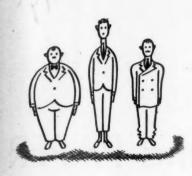
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SEPTEMBER • 1938

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First TAPPI Dinner Meeting in Portland

Tuesday evening, October 4th, Heathman Hotel

● The first of the Fall and Winter dinner meetings to be staged by the Pacific Section of TAPPI will be held at the Hotel Heathman in Portland, Oregon, Tuesday evening, October 4th at 6:30 p.m. J. V. B. (Van) Cox, secretary-treasurer of the Pacific Section will be chairman of the meeting, and is in charge of arrangements.

Otto R. Hartwig will speak on the wages and hours law and social security legislation and how these laws affect all of us. Mr. Hartwig prominent Oregon labor leader, is now associated with the Crown Zellerbach Corporation under leave of absence from the Oregon Unemployment Compensation Commission. His past experience and his present work qualify him as an expert on the subjects he has consented to talk upon.

A second speaker will be Evald Anderson of the Western Precipitation Company of Los Angeles. He will lead a discussion on methods of recovering chemicals from waste stack gases and the elimination of these gases as a public nuisance.

The Portland dinner meeting program was arranged by William T. Webster, vice-chairman of the Pacific Section. Mr. Webster announces that the subject of the talk and discussion at the dinner meeting scheduled for Everett, Washington on Tuesday evening November 8th will be "Waste Utilization." Details of the November meeting program will be published in the October number.

• The officers of the Pacific Section, N. W. Coster, chairman, Mr. Webster and Mr. Cox together with the two other members of the executive committee, past chairmen George H. McGregor and Carl Fahlstrom, are planning programs covering a broad range of problems facing the pulp and paper industry.

Reservations for the Portland dinner meeting, Tuesday evening October 4th at 6:30 p.m. should be made with J. V. B. Cox, secretary treasurer of the Pacific Section, P. O. Box 3939, Portland, Oregon.

Competition for Shibley Award

• In the August number the Pacific Section of TAPPI announced the Shibley Award, an annual prize of \$50 for the best paper presented during the Fall and Winter by a man actively working in the pulp and paper mills of the Pacific Coast.

The executive committee of TAPPI has outlined the conditions as follows:

"All papers must be submitted to the vice chairman of the Pacific Section in quadruplicate and will be judged by the officers and executive committee of the Pacific Section on the following points:

"1. The amount of interest shown at the meeting where the paper is

presented.

"2. Presentation.
"3. Technical value.

"Papers should be in the hands of the vice chairman at the earliest possible date in order that the program for the various meetings may be arranged to the best advantage. Judges will reserve the right to select the papers to be presented from those submitted.

"Papers may be on any subject dealing with some phase of the pulp and paper industry. Engineering subjects will be particularly welcome as well as papers dealing with chem-

ical subjects.

"All papers must be in the hands of the vice chairman at least thirty days before the meeting at which the paper may be presented. Anyone proposing to submit a paper who has not yet completed the paper should write the vice chairman giving the title and a brief resume of the contents and the date when the paper will be ready. Such information must be in the hands of the vice chairman by November 1st, and preferably sooner. Papers submitted and not presented at one of the meetings will be returned, or if possible will be published in the "Pacific Pulp & Paper Industry" magazine.

magazine.

"Address all correspondence regarding the Shibley Award to William T. Webster, St. Regis Kraft Company, Tacoma, Washington."

Crown Zellerbach Appoints W. R. Barber Technical Director

ROWN ZELLERBACH COR-PORATION announces, through Albert Bankus, vicepresident, the appointment of W. R. Barber as technical director of the corporation, succeeding Dr. E. C. Lathrop, who resigned recently to return to the Celotex Corporation.

Mr. Barber has been associated with the Crown Zellerbach Corporation for the past eight years, in the technology of pulp and paper operations, development and research. For the past three years he has acted in the capacity of technical supervisor of the Camas, Washington, mill.

In his new position, Mr. Barber will be director of the technical work for all the Crown Zellerbach properties, including seven pulp and paper mills. These include the Crown Willamette Paper Company division mills at Camas, Washington: Lebanon and West Linn, Oregon; the Washington Pulp & Paper Corporation division at Port Angeles; the National Paper Products Company division at Port Townsend, Washington, and Carthage, New York; and Pacific Mills, Limited, at Ocean Falls, British Columbia. Also under his supervision will be the technical activities of the Western Waxed Paper Company division, with plants at Los Angeles



W. R. BARBER Technical Director Crown Zellerbach Corporation

and Oakland, California, and at North Portland, Oregon, as well as the Crown Willamette converting plants at Los Angeles, California and Harlingen, Texas, and that of Pacific Mills, Limited, at Vancouver, British Columbia.

A native of New York State, Mr. Barber received his high school education there before moving to the West. Subsequently he attended Leland Stanford Jr. University at Palo Alto, California, from which he received his degree of A. B. in chemistry in 1919, and the advanced degree of chemical engineer in 1921. This was followed by another year of graduate work in chemical engineering.

• He became assistant to the Commissioner of the United States District court of Utah, specializing in the technical aspects of smelter smoke litigation in the Salt Lake Valley, some time before becoming connected with the Crown Zellerbach organization.

Mr. Barber is a member of Phi Beta Kappa; Sigma Xi, honorary scientific society; Phi Lambda Upsilon, honorary chemical society, and TAPPI, for which he served as vicechairman of the Pacific Coast Section in 1934-1935 and chairman in 1935-1936; followed by two years as a member of the executive committee.

Central technical headquarters of the corporation will remain at the Camas mill.

F. A. Olmsted succeeds Mr. Barber as Camas mill technical supervisor, advancing from the post of assistant.

Powell River Institutes New Sales Policy

The Powell River Sales Company, selling agents for the Powell River Company of Powell River, B. C., manufacturers of newsprint, is reported to have instituted a new sales policy in newsprint sales on the Pacific Coast by offering publishers a five year contract at the prevailing New York base price of the major eastern producers, and also agreeing to deliver newsprint at the water-borne rate when carried by rail in cases where water shipments are impossible.

The new policy is reported to have arisen from a contract negotiated with Scripps-Howard papers where the unsettled European situation entered into consideration of sources of supply.

Pomona Paper Products Expands Facilities

• The Pomona Paper Products Company has increased its present floor space fifty per cent to make room for the installation of a new napkin manufacturing machine. The latter was installed early in September and is one of the most modern type machines available. The new addition is in line, according to Paul R. May, president of the company, with the firm's plans to develop additional products for the western market. The expansion in their production program is fashioned after similar developments in the Marcalus Manufacturing Company of Elizabeth, New Jersey, of which company the Pomona firm is an affiliate. They will manufacture a complete line of napkins for home use. The line will be attractively embossed and packaged in cellophane and glassine wraps.

Camas Lets Contract to Hoffman

● The Camas mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation late in August let a contract to L. H. Hoffman of Portland for the reconstruction of the headworks supplying water to the mill.

During the summer months when water from the company's reservoir is exhausted Columbia River water is pumped to the filter plant located on the hill back of the plant. Construction will begin about October 15th when it is expected sufficient water will be in the reservoir to permit the discontinuance of pumping from the river.

The present wood forebay will be replaced with reinforced concrete construction and new steel gates for controlling the water together with trash racks will be installed. A new timber settling basin will be built to replace the present settling basin, and this will be provided with an overflow and drainage channel. All timber used in the new basin will be treated to prevent decay. Once work gets under way the job will be completed in from three to four weeks.

Spaulding Dryer Now Operating

The pulp mill of the Spaulding Pulp & Paper Company resumed operations at Newberg, Ore., on Aug. 22, upon completion of extensive remodeling work on the pulp machine. The plant is expected to run all through September, if not beyond.

By adding 52 new dryers to the machine, its capacity has been increased sufficiently to handle the entire output of the mill and produce 100 per cent sheet pulp. The shredded pulp dryers are being retired from service.

Crown Zellerbach Reports Increase for Quarter

For three consecutive quarters the Crown Zellerbach Corporation has reported a slight improvement in earnings. Net income for the quarter ending July 31st was \$970,055 after all charges for depreciation, depletion, interest, taxes, and after deducting minority stockholders' proportion of the net profit of Pacific Mills, Ltd., but before calculation of undistributed profits tax.

After deducting full dividend requirements on the new \$5 cumulative convertible preferred stock, earnings were equal to better than 13 cents per share on the 2,261,199 shares of common out-

standing.

In the preceding quarter ending April 30th, the corporation and its subsidiaries made \$964,569 net proft, and for the quarter ending January 31, 1938, the net profit was \$806,064.

Year Ago Share Net 81 Cents

For the corresponding first quarter of the previous fiscal year, net profit aggregated \$2,507,711, equivalent to 81 cents a share on the same basis. The first quarter report of the current year is subject to annual year-end audit and

adjustments.

Current business conditions were reflected in decreased sales for the quarter just ended compared with a year ago. Net sales for the three months ended July 31, 1938, were \$11,732,900, as against \$14,172,051 in the like period last year, a decline of \$2,439,151, or more than 17 per cent. Volume includes sales of purchased merchandise by the company's jobbing units as well as sales of the company's own manufactured goods, but do not include billings of merchandise between the company's various divisions.

Also contributing to the reduced earnings for the first quarter of the current year, as compared with the like quarter of 1937, is the fact that 1937 earnings included the net equity in consolidated earnings of Fibreboard Products, Inc., and its subsidiaries, whereas earnings for the quarter just ended include only dividends actually received. Amount credited to earnings from this source amounted to \$117,232 in the first quarter of 1938, compared with \$308,880 in the corresponding period of 1937.

Profit for the Fiscal Year

The independently audited report of Crown Zellerbach Corp. and subsidiaries for the fiscal year ended April 30, 1938, shows a consolidated net profit of \$6,-211,414 after depreciation, depletion, interest, income taxes, surtax on undistributed profits, and minority interest, equal to \$1.57 a share on 2,261,199 common shares after regular dividends on \$29,655 shares of \$5 preferred. This compares with a consolidated net profit of \$5,094,403 in the preceding fiscal year, equal to \$1.08 a share on the same number of common shares after regular preferred dividends.

Sales in the fiscal year ended April 30, 1938, totaled \$49,891,332 as compared with \$48,675,203 in the preceding year. Sales include sales of purchased merchandise by the company's jobbing units as well as sales of the company's own manufactured goods, but do not include billings of merchandise between the company's various divisions.

Rayonier Reports First Quarter Loss

 At a meeting of the directors of Rayonier Incorporated late in August action on the preferred dividend was deferred to await improvement in business.

The company reported a net loss of \$183,264 for the quarter ending July 31st, the first quarter of the company's fiscal year. This loss was after depreciation, interest and other expenses but was before federal taxes. Provision for depreciation was \$274,439.

Profit from operations before depreciation was \$155,232 for the quarter. The deferrment of the preferred dividend, which would have been payable October 1st, will result in an accumulation of \$313,102.50 against the 626,205 shares outstanding.

In the quarterly statement to stockholders Edward M. Mills, president of Rayonier Incorporated, stated in part:

"Due to a complete lack of business with Japan and a very drastic curtailment of shipments to domestic and European customers during the quarter ended July 31, sales for the period were less than for any quarterly period of the company and its predecessors since 1932. Nevertheless, according to trade reports, the operations of rayon producers have been at a rate to require considerably more dissolving pulp than the rate of pulp shipments by the company, and there are indications that a substantial

reduction of pulp inventories in the hands of rayon producers has occurred.

"In the case of Japan, recent reports indicate that pulp inventories, which were large at the end of 1937, will be practically exhausted by the end of the year if the present rate of usage is maintained."

In respect to the domestic situation Mr. Mills stated:

"Sales of rayon by domestic yarn producers have shown sharp increases since the middle of July and several companies have reported resumption of operations by plants temporarily closed and an increase in the rate of operations.

"It is hoped," Mr. Mills says, "that excess inventories of rayon will shortly be liquidated to a point where normal operations will be resumed.

In connection with the deferrment of the preferred dividend Mr. Mills stated, "it is hoped that the improvement in business which now appears to be taking place, will continue and that payment of dividends will not long be deferred."

During the May, June and July quarter Rayonier Incorporated produced 13,618 tons of dissolving pulps, 6,482 tons of ordinary bleached sulphite pulp and 3,276 tons of paper. In the same period the company sold 10,232 tons of dissolving pulps, 4,916 tons of ordinary bleached sulphite pulp and 3,892 tons of paper. The ratio of sale to production for dissolving pulp was 75.2 per cent; for ordinary bleached sulphite pulp, 75.8 per cent; and for paper, 118.7 per cent.

Longview Fibre Continually Improving Mill

• During the past year the Longview Fibre Company have made a number of improvements in the Longview, Washington, plant which have served to keep the mill abreast with the most modern trends in plants of this type.

A Thomlinson furnace of 108ton capacity was added, connected to an existing Stirling boiler. Installation was made by C. C. Moore & Co. It went into operation March 1, replacing certain existing furnace equipment.

The company also put in a new 76-inch Langston corrugator, equipped with double cut-off and with A and B flute corrugating units. The machine is of the most modern design and is the last word in this type of equipment. This unit increases plant capacity, being an addition to the 63-inch machine already in use.

In the box making department a Swift solid fibre box making machine was put in. The machine takes the box blanks and scores, slots and prints in two colors, all in one operation.

On No. 3 fourdrinier machine, a new Beloit wet end, with 85-foot wire, has been installed. This includes a dual press, and replaces the former 65-foot wire conventional press layout. To No. 3 machine were also added eight additional 60-inch

• Bleaching facilities have also been added during the year. This consists of a batch process based on five-ton batches, with the usual blending chest, low density chlorinator and two five-ton medium density (12 per cent) cells. The system was all made and designed by the Pulp Bleaching Company. It also includes two Pulp Bleaching Company tile vat washers, a new feature in bleaching systems.

One new digester was installed last fall, giving the plant a total of five such units. It is a 7½-ton Blaw-Knox digester with four diffusers and the accompanying stock chests.

Crown Zellerbach Announces Promotions

 Louis Bloch, chairman of the board of the Crown Zellerbach Corporation, San Francisco, issued the following statement in mid August:

"We are very pleased to announce the election of Frank N. Youngman as vice president of this corporation.

"Other changes on the board of directors are as follows: Mr. I. Zellerbach, after 50 years service, chairman of the executive committee; Mr. I. D. Zellerbach, president.

Mr. J. D. Zellerbach, president.
"In addition to Mr. A. B. Martin, executive vice president, the following are elected executive vice presidents; Mr. R. A. McDonald and Mr. H. L. Zellerbach."

J. D. Zellerbach

• Mr. J. D. Zellerbach, former executive vice-president and recently-elected president of Crown Zellerbach Corporation, has devoted his business career to the service of the various Zellerbach companies, which are all outgrowths of the paper business founded by his grandfather, Anthony Zellerbach. A native of San Francisco, Mr.

A native of San Francisco, Mr. Zellerbach obtained his earlier education in that city, and graduated from the University of California

in 1913.

After graduation and a trip around the world, he started in the

accounting department of Zellerbach Paper Company in October of 1913.

Subsequently developing a liking and aptitude for the manufacturing phases of the business he devoted his efforts principally to the manufacturing subsidiary of Zellerbach Paper Company, National Paper Products Company, then headed by M. R. Higgins. In time, Mr. Zellerbach became vice-president and president of National Paper Products Company.

• In 1927 the paper board and boxboard divisions of National Paper Products Company were merged with similar divisions of the Paraffine Companies, Inc., in the formation of Fibreboard Products, Inc., of which Mr. Zellerbach became the first president and in which capacity he continued until this year, when he became chairman of the board.

Mr. Zellerbach is also executive vice-president and a director of Rayonier Incorporated, a director of the Wells Fargo Bank and Union Trust Company, vice president and director of Mount Zion Hospital and of the Congregation Emanu-El. He belongs to a number of

clubs, among them the Beresford Country Club, the Commercial Club, the Concordia Club, the Stock Exchange Lunch Club and the St. Francis Yacht Club.

Mr. J. D. Zellerbach is the elder son of I. Zellerbach, former president, recently elected chairman of the executive committee of Crown Zellerbach Corporation. Mr. I. Zellerbach recently completed fifty years of service with the Zellerbach interests.

R. A. McDonald

• R. A. McDonald becomes executive vice-president of Crown-Zellerbach after an interesting business career which started in 1907 when he went to work on construction projects as timekeeper and material clerk.

Mr. McDonald was born in Chicago and attended school there. From 1907 to 1914 he held various positions in construction work in various parts of the United States.

He was general superintendent of the C. F. Massey Company of Memphis, Tennessee, and later general superintendent of material production for the Consumers Company of Chicago.

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In 1920 Mr. McDonald went to Portland, Oregon, and became vicepresident of the Western Waxed Paper Company of California, building a plant in Oakland and purchasing the Pioneer Paper Co. plant in Los Angeles.

In 1928 Western Waxed sold out to Crown Willamette Paper Company and Mr. McDonald became a



J. D. ZELLERBACH President Crown Zellerbach Corporation



I. ZELLERBACH Chairman of Executive Committee Crown Zellerbach Corporation



HAROLD L. ZELLERBACH
Executive Vice-President
Crown Zellerbach Corporation



FRANK YOUNGMAN Vice-President Crown Zellerbach Corporation

vice-president of that firm. He was elected a director of Crown-Willamette in 1929 and in 1931 was made a vice-president of Crown-Zellerbach. In 1931 he also was elected president of the Comfort Paper Corporation and in 1933 was elected director of Crown-Zellerbach. In 1935 he was elected director of National Paper Products Company, in 1936 made vice-president of Avalon Paper Company, and now becomes an executive vice-president of the parent organization.

Harold Zellerbach

 Harold L. Zellerbach, one of the new executive vice-presidents of Crown-Zellerbach, is the second son of I. Zellerbach, who recently retired as president of this company and he is a brother of J. D. Zellerbach, the new president.

Harold L. has spent his business life in the service of the Zellerbach organizations. At present he is president of the Zellerbach Paper Company, a post he has held since 1929, and is director of Crown-Zellerbach, Zellerbach Paper, National Paper Products Company, Comfort Paper Corporation, American Investment and Realty Company, Handor Investment Company, Washington Pulp & Paper Company, Sanitary Products Company and General Paper Company.

He has served as president of the National Paper Trade Association and is now a member of that body's advisory council, composed of past presidents. He did an outstanding job as chairman of the national code authority for the paper distributing trade during the days of the N.R.A.

Mr. Zellerbach was born in San Francisco, attended schools there and received his B. S. degree from the University of Pennsylvania in 1917.

• He entered the Zellerbach Paper Company service in November, 1917, and was successively export manager, San Francisco manager, assistant to the president, vice-president and president.

He was married in 1917 to Miss Doris Joseph and three children were born of the union.

His club affiliations include the St. Francis Yacht Club, Commonwealth Club, Concordia Club, Beresford Country Club, San Francisco Commercial Club and his hobbies are aviation and athletics.

Odom Resigns From Hawley

• Foster Odom, master mechanic for the Hawley Pulp & Paper Co. at Oregon City, Ore., is leaving the company to engage in the general contracting business. He will maintain his headquarters in Oregon City.

Mr. Odom's successor has not yet been appointed.

Western Paper Products Moves Plant

● Entire third floor of the building at 179 Eleventh St., San Francisco, has been taken by Walter Busse's Western Paper Products Co., manufacturers of specialty paper bags. Mr. Eusse announces the firm is now manufacturing cloth bags also.

Western Paper Products Co. was established about a year and a half ago by Mr. Busse who for years was with Blake, Moffitt & Towne.

Moffitt & Towne.

In its new location the firm has about 6,000 square feet of floor space—twice the size of its former location on Washington Street.

Sewing machines and die cutting equipment have been added.

Al Isaacs Leaves Crown

• Al Isaacs of the Crown Zellerbach Corporation personnel department, left the company August 15 to go with the State of Oregon in the vocational education department. Mr. Isaacs has moved from Camas to Portland, where he will be located in the future, and is living at 2437 N. E. Hoyt St.

Tony Siebers Makes Trip

Tony Siebers, paper mill superintendent, was away from his post at the Longview Fibre Company for several weeks in August, while on a vacation trip into the Middle West.

British Interests Consider Island Mill Sites

• Proposed construction of a new sulphite pulp mill on the west coast of Vancouver Island advanced a step with the visit to British Columbia this month of Sir Malcolm Stewart and T. F. C. Frost, British industrialists who own large timber stands on the island and who are the principal capitalists behind the Nootka Wood Products, Ltd.

A. E. McMaster, managing director of Nootka Wood Products and for many years general manager and vice-president of Powell River Company, met the two visitors and accompanied them on an airplane trip to Port Tasis, where Nootka Wood Products operates a sawmill.

It has long been hoped by Mr. McMaster to establish a pulp mill on the west coast, using pulpwood from the forests owned by Sir Malcolm, Mr. Frost and other British interests. Building of mill might already be in progress had the mar-

ket maintained its level of a year ago, but decline in prices has discouraged investment for the time being.

Several prospective sites for a pulp mill on Vancouver Island have been discussed, and Port Alberni is at present favored. Port Alberni is located on a good harbor and is already the center of a large export lumber business, the chief shippers being Bloedel, Stewart & Welch and Alberni-Pacific Lumber Company, operated by the MacMillan interests.

Only objection to Port Alberni is that the pulpwood holdings of Sir Malcolm Stewart are at the north end of the island, and a long haul in open water would be necessary to transport the raw material to the mill. It is doubtful, however, whether the hazards would be any greater than those now experienced in towing spruce logs from Queen Charlotte Islands to Powell River and other mainland mills.

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Woodfibre – A Study in Contrasts

Here the New and the Old in Sulphite Pulping Practice Combine to Produce High Quality Alpha Cellulose Pulps

HE plant of the British Columbia Pulp & Paper Company, Limited at Woodfibre,
B. C., located on beautiful Howe Sound about thirty miles from Vancouver, is one of the most interesting pulp mills on the continent. It is a study in contrasts, nineteenth century type wooden acid towers and an ultra-modern windowless steel and reinforced concrete bleach plant; a digester dump system together with a Chemipulp system in 100% acid resisting steel; belt driven vertical Quiller rotary screens and lines of motor driven Dunbar drive flats equipped with Union screen plate fasteners, Crodon chromium plated style E undercut plates; a battery of thirteen small fire tube boilers to produce steam and Flakt dryers to use it most economically; water driven prime movers and synchronous motors; slushers of all wood construction and the last word in deckers

LAWRENCE KILLAM
President & Managing Director
British Columbia Pulp & Paper
Co. Ltd.

with driven rubber covered couch rolls. In the process of changing the unbleached plant into a mill whose bleached product is the highest grade for paper or dissolving pulps, the old was left unchanged where it had demonstrated its unquestioned economic worth, so the visitor finds the picture most intriguing.

• The Woodfibre mill has produced unbleached sulphite exclusively during its more than twenty-five years of operation, principally the easy bleaching grade known as Glacier Brand.

The new bleached line to be manufactured at Woodfibre will range from strong paper pulp of normal chemical properties, through dissolving pulps of usual specifications for rayon, cellophane and lacquer production, to specialty pulps of very high alpha cellulose content suitable for nitrating and other special purposes.

The program carried out to accomplish this result has included extensive overhauling of the unbleached pulp mill, construction of a new bleaching and refining plant, rebuilding the drying machines, installation of process water filtration and an additional power supply, and the provision of new laboratory facilities. Since Woodfibre is a self-contained mill community additional townsite facilities were also necessary to care for the increased technical and operating staff.

The necessity for holding production of a wide range of qualities uniformly to specifications within close limits has dominated the engineering of all items in this program, and the short period of operation to date has demonstrated that the plant possess this ability to a very high degree.

Remodeling of the unbleached mill has been carried on over a period of about two years.

Acid Plant

THERE are four conventional type rotary burners, of which only two are used at a time. They are enclosed and the common main from the combustion chambers has two connections to the cooler, one at each end. Each half connects with its own gas fan and these two discharge again into a common header to the towers.

The cooler is horizontal and is in effect two two-pass coolers. Each fan pulls gas from the combustion header through one pass of the cooler and then blows it back through another pass before it enters the header to the towers. The fans are all-iron, the gas temperature being sufficiently above the condensation point of sulphuric acid to completely eliminate corrosion.

There are nine wooden limerock towers, size 6 feet by 74 feet 5 inches. Six of these towers have been in service for twenty-seven years, the other three were installed in 1919, and like Johnnie Walker are all "still going strong." The towers are used in groups of three, two groups being in use each day making acid, one group being down for filling with limerock. The gas fans drive the gas up through the strong tower, down through the middle tower and up through the weak tower. Water enters the top of the weak tower by gravity discharging into a small wooden tank from which it is pumped to the top of the middle towers which likewise discharge to a wooden tank, from which it is pumped to the strong towers. Arrangements exist to recirculate some acid through the middle tower to regulate the combined. This feature is of great advantage in winter months, saving the necessity of using any steam for this pur-

pose. The strong towers discharge into two fair sized settling tanks from which the acid is pumped to the reclaiming tanks and flows by gravity from these to the three wooden storage tanks. From a com-mon header from these the acid is continuously pumped to the accum-

All the acid pumps, fans, etc., in the acid plant are driven by an impulse type water wheel operating under 375 lb. head of water pressure. The discharge of the wheel feeds the cooler. A steam stand-by is provided in case of water failure.

Originally seven bronze twostage acid pumps were required to run the towers. The patterns for these pumps were brought out from Germany when the mill was built. They were beautifully designed pumps but were very expensive from a maintenance standpoint. The seven were replaced this year by three acid resisting steel Smart-Turner pumps. The bases of these pumps were designed for motor as well as belt drive but since water must be provided for the cooler in any case, it is very likely that they will remain belt driven from the water wheel.

The winch running the limerock elevator is also water driven.

An interesting feature of the acid plant is the lead burning shop where hydrogen gas is still used for lead burning, produced as it was originally in the sulphite game by the action on zinc of sulphuric acid (collected from the cooler drips as



O. A. JORGENSON Treasurer & Assistant Managing B. C. Pulp & Paper Co. Ltd.

a by-product) in a home-made lead Kipp apparatus, the compressed air being furnished by a submerged bell in water. The drawback of course is that the lead burning job has to be brought to the apparatus, quite the reverse of our modern acetylene lead burning. So today, the latter is also used where the former can-

The sulphur is supplied by the Texas Gulf Sulphur Company and the burners have solid feed.

Digester House

THE digester house is the only one of its kind in America. It has many features that are today unique. For example, the cooking is not done from the top floor but from the first floor, representing "the bridge" in the early sul-phite mills. All recording instruments, valves, test lines, etc. are located on this floor. The helpers on the top floor fill and wash out the digesters, those on the bottom floor look after the dumping, etc. and the cook holds that position which exists only in the Utopia of sulphite. He cooks and does nothing else!

There are four digesters 18 feet by 45 feet overall. The digesters do not "blow," they dump. Instead of a blow valve there is a hinged blank on the bottom elbow of the cross. This is kept bolted on during cooking, and, after the liquor has been drained out and the digester filled again with water and ready to dump, the bolts are removed except for a single dog operated by a lever from the outside. When this is turned clear of the blank, the hydro-static head swings the blank open on the hinge and the digester contents dump or are washed out into the blowpit. The backwash and hoses are from the 250 lb. water main.

Another feature not found elsewhere in America is the method of steaming, etc. Inside each digester, just above the bottom, is a 4 inch diameter perforated coil with over three thousand $\frac{3}{32}$ inch holes. This coil has two connections to the outside, one on either side of the digester. Each is connected to a cross and the cross connects to the acid filling line, to the steam main, to the sewer for drainage, and to the high pressure water system through a pressure regulator for filling with water after draining preparatory to dumping. (There is a third steam connection to the bottom digester tee opposite to the dumping flange

used to cook the chips below the

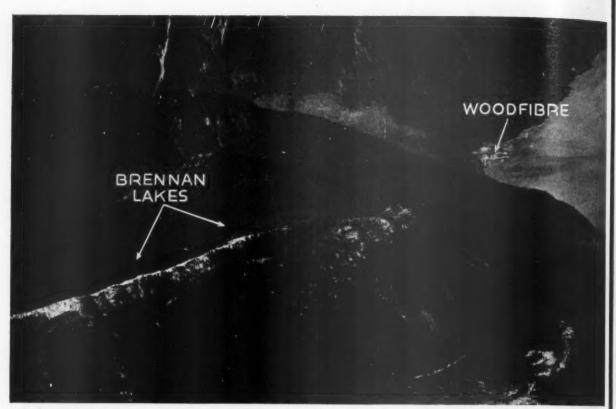
coil and to assist in dumping.) When the digester is filled with chips and the cover put on, hot acid from the Chemipulp accumulator is pumped in through the coil and the customary "pre-circulation" given. Then steaming is done through the same coil. When the cook is done the liquor is drained out through the coil also, and finally the digester is refilled with water through it. The coils and fittings were originally copper and bronze but these have been replaced during the past year with cast acid resisting KA2Mo steel furnished by Shawinigan Chemicals, Limited.

• Another interesting feature of this digester house is that the backing course of the lining is solid concrete with but a single face course. The original backing is still intact and unaffected by corrosion. When thought is given to the excessive temperature change caused by varying from the hot finished digester acid temperatures almost instantaneously to temperatures of water obtained from lakes 3,000 feet in elevation, and to the hoses with water from the same source in washing out each cook, one has to revise his theories of digester brick spalling and failure. The life of a face course in Woodfibre more than equals that of any modern "blow"

The Chemipulp hot acid system is a typical installation with 32 foot spherical accumulator needing no special explanation. All pumps, valves, piping, relief lines, etc., are in acid resisting steel.



E. P. BRENNAN, Plant Manager Woodfibre Mill B. C. Pulp & Paper Co. Ltd.



WOODFIBRE is located on the precipitous shore of upper Howe Sound about thirty miles from Vancouver, B. C. / / Water for the mill comes from lakes high above the townsite in the rugged mountains / / Two of these lakes are shown in this aerial photograph / / An idea of the scenic grandeur of the country surrounding Woodfibre can be gained from the fact that the Brennan Lakes are about 2,800 feet above the town.

The digesters have recording pressure gauges at the top of the digester reading on the top floor for the helpers. All other instruments are on the cooking floor. Each digester is equipped with glass gauge levels, recording and integrating steam flow meters, automatic



ANDREAS CHRISTENSEN
Technical Adviser
B. C. Pulp & Paper Co. Ltd.

control recording pressure gauges, the usual indicating gauges and test cocks and recording two-pen arm thermometers reading temperatures just above the bottom cone and just below the top cone. These thermometers were installed during the preceding year and have special heavy cast KA2Mo sockets extending 24 inches inside the digester lining. The accumulator has recording level gauge, recording pressure gauge with Foxboro automatic control, and ditto recording thermometer operating the heat exchanger.

Chip packing is used in filling the digesters. Pre-circulation is also used. Cooking is done on the steam flow meter in conjunction with the Foxboro automatic pressure control. Side relief and high pressure relief are to the accumulator which in turn relieves through a 31/2 inch line without cooler to the bottom of the reclaiming tanks. Low pressure relief goes directly through the same line to the reclaiming tanks. Cooking practice differs in Woodfibre from the average mill in the method of steaming and in the degree to which pressure is pulled down be-fore the cook is finished. The latter reads between 15-18 lb. on the bottom digester pressure gauge and 9-12 lb. on the top.

 As a result of proper acid make ing control and proper cooking methods the sulphur consumption is the lowest on the Pacific Coast and will unquestionably shortly equal or better the best Eastern practice. The average is now approximately 210 lb. per ton of pulp as against 300 lb. for normal Pacific Coast operation. Steam consumption is prob ably the lowest in the country, averaging slightly under 3,000 lb. F. and A 212 F. per ton of unbleached This includes steam for chip pack ing. The yield per cubic foot of digester space is exceptionally high The yield per digester is over 22 tons of finished screened bleached The four digesters with a 101/2 hour cook easily make enough unbleached to keep the mill going at a rate of 175 tons of finished bleached pulp per day.

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Unbleached Screening

THE whole unbleached mill is run from one single impulse type water wheel rated at 1187 H.P. with belt and chain drives. This wheel also drives a 40 k.w. d.c. generator and formerly No. 1 machine. The tailrace water from an

other 150 h.p. water wheel driving an a.c. generator at the same location as the former wheel serves as wash water for the blowpits. These have perforated wooden bottoms, there not being enough residual waste liquor to warrant an installation of acid resisting steel.

The blowpits are hosed out by water from the 250 lb. water main into the blowpit tank. Since the stock in the blowpits, due to the dump system, is practically all in chip form, the stock is first pumped through a chip breaker or "beater." From thence it goes by gravity to five Sherbrooke knotters, thence to four rifflers, size 11 feet by 61 feet each, and from there to eight vertical Quiller screens. These act not only as screens but as further fibre bundle breakers, and the rejects are screened on sixteen flat screens. The accepted stock from Quillers and flats is thickened on one slusher and three 36 inch by 110 inch deckers to an average (with what is bypassed the thickening) of 1.25% A D to the pump sump for the bleach plant. Two of the deckers and the slusher discharge into the pump sump by a rubber belt conveyor, the third decker by sluice. All engineering design and details of the deckers were made by the Woodfibre staff, the moulds made by Letson and Burpee in Vancouver, the castings by Ross and Howard in Vancouver and the couch rolls rubber covered by Huntington Rubber Company, Seattle. One of the most difficult of the construction feats

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was to make the installation of the deckers, conveyor, eight screens, stock pump and white water pump, etc., without losing any production of unbleached.

The white water from the deckers is pumped back as dilution water to knotters, Quiller flumes and tailings flumes. In case of fresh water shortage this white water can also be used as blowpit dilution.

The present unbleached layout is well-balanced, there being ample equipment to lay off, one at a time, a knotter, rotary, line of flats, etc., for repairs or the like. No good fibre goes over the end of the tailings screens.

• A float in the small sump of the unbleached pump to the bleached plant automatically works the solenoids which open and close the hydraulically operated discharge stock valve of the pump. This serves two purposes; it prevents any possibility of the sump overflowing and keeps a steady flow to the bleached plant unbleached thickener. The pump is direct connected, motor driven, the valve a Record stock valve.

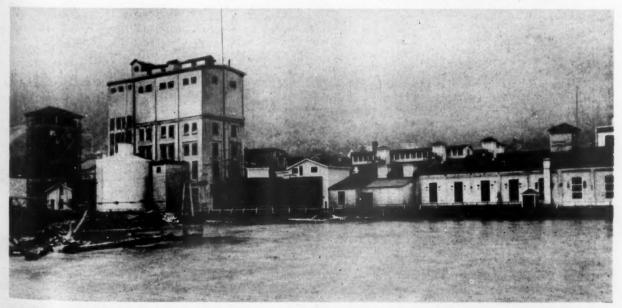
The new bleach plant building is some distance from the unbleached screen room. The unbleached stock runner and bleach plant operator have selsyn operated signal controls to keep in touch with one another. These operate by motor much on the same principle as a ship's telegraph. In each of the two departments on a control panel is a twelve inch dial with twelve stops like a

clock, made up as shown in the accompanying cut. A small knob in the center with a red arrow 4 inches long can be turned to any signal desired. When turned on one panel it automatically turns to the same place on the other. The method of operating is as follows:

Suppose the bleach plant operator found the incoming stock becoming too thick for his thickener to handle properly. He goes to his control board, turns the knob of his selsyn control to "Send More Water," and pushes a button which operates a gong at the panel in the unbleached The unbleached stock screen room. runner hears the gong, reads his control and turns the knob back to "Signal Received." He does not ring the bleach plant back to acknowledge receipt of signal, this to avoid confusion, since the bleach plant operator can tell by his arrow going to "Signal Received" that his message is being taken care of.

If the unbleached stock runner wishes to signal the bleach plant he sets his arrow to the message he wishes to send, pushes a button which rings a gong over the panel in the bleach plant and waits to see the bleach operator turn the arrow back to "Signal Received."

The system works remarkably well and any reasonable number of stops can be made on the dial, it not being limited merely to twelve. To Mr. Raymond P. Hill of the Pulp Bleaching Company goes all the credit for this system.



WOODFIBRE from the dock showing acid towers, digester building Chemipulp accumulator and machine room with a corner of the new bleach plant building at the extreme right.

New Bleaching Plant At Woodfibre

Ultra Modern in Design, Equipment and Control

HE bleaching and refining plant is a completely new unit housed in its own independent structure. It is literally a laboratory built on a production scale and is without doubt the most highly developed plant of its kind in the world today. The design provides several combinations of multi-stage process cycles for various grades of product. The batch principle of operation is used in order to secure the highest possible precision in control. Rated capacity of the unit is 150 tons per day of high alpha pulps or 165 tons of paper pulp.

This unit was designed and engineered by Pulp Bleaching Company of Orange, New Jersey, whose Canadian associate, Pulp Bleaching Limited of Montreal, was the contractor for practically the entire equipment of the plant.

A reinforced concrete structure 122 feet long, 64 feet wide and 55 feet high houses all the process equipment, the bleach liquor preparing and storage tanks, a production control laboratory, and the electric power distribution center for the bleaching department. Stock and process water are carried between the new unit and the original mill buildings in wood stave pipe lines supported on an overhead bridge. A separate one-story building located at the wharfline provides for lime storage, lime dissolving tanks, strong caustic storage and caustic dilution tanks, from which these chemicals are transferred to the main building by centrifugal pumps. A ferry slip and trackage at one end of the plant provides storage for several tank cars of liquid chlorine and caustic, which are delivered by car ferry from Vancouver. Liquid chlorine and caustic soda are supplied by the Pennsylvania Salt Mfg. Co. of Washington at Tacoma.

The main bleaching building and the several reaction and storage tanks which it contains are built as one monolithic structure with the

tanks carrying practically all build-ing loads. The slip form method construction was used. This building is entirely without windows, to insure against entrance of dirt and to provide uniform lighting conditions at all hours and seasons. Filtered air, heated under thermostatic control during the winter months, is introduced at the ceiling of the upper or operating floor. An equivalent volume is discharged through ducts from the several reaction cells where irritating vapors might originate. A large exhaust fan at ground level is provided to take care of the emergency of a leak in the chlorine system. The room occupied by the control laboratory is of semi-soundproof construction and has its own independent ventilating system, as has also the room containing the electrical control equipment. The operating floor is The operating floor is uniformly lighted by overhead units to an intensity of approximately 18 foot candles, affording ideal working conditions.

Dominion Construction Company, Limited, of Vancouver, B. C., was the contractor for the concrete structure and C. H. E. Williams Company, Limited, of Vancouver, the contractor for electric wiring.

Stock Flow

• Unbleached stock at 1.25 per cent consistence as received by pipeline from the pulp mill is brought to a vacuum type thickener-regulator located on the bleach plant operating floor. Regulation to 3 per cent oven-dry is accomplished by blending stock discharged from the dewatering cylinder of this machine with dilute stock by-passed from the incoming supply. This regulated mixture then flows by gravity directly to the battery of four six-ton batch chlorinators used in the first stage of the refining process, filling each one in rotation at production rate of flow without any intervening storage chest or repumping.

Elemental chlorine is the only reagent used in this stage and is transferred in the liquid state from tank cars to a pressure weighing drum. then to a coil and drum type vaporizer with automatic temperature control which delivers the resultant dry gas to the chlorinators through

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Pyrex glass piping.

The pulp after chlorination is transferred by a rubber-lined centrifugal pump directly from each chlorinating cell to a rubber-covered vacuum filter, on which it is washed in the acid condition and discharged at approximately 16 per cent consistence. It is then brought to a controlled pH by a measured addition of alkali and conveyed to a battery of three high consistence bleaching cells in which it receives primary hypochlorite bleach. These bleachers are constructed on top of a large horizontal dilution chest into which the pulp is discharged by gravity at the end of the bleaching cycle and diluted to about 3 per cent consistence.

From the dilution chest stock is delivered to the second washerthickener, the discharge from which is either by-passed directly to the final bleaching stage when making paper pulp or conveyed to an alkali refining stage when making dissolving pulp. Refining is carried out at high consistence in a battery of four closed vessel refiners which may be operated under pressure.

These units also discharge by gravity to a dilution chest from which the stock passes over a twocylinder tandem washer to an acidulator, where it is subjected to controlled pH on the acid side for a

definite period.

From this stage the stock passes over a fifth washer which discharges by conveyor to a battery of six vertical bleachers comprising the final hypochlorite stage. From the dilution chest associated with these bleachers the pulp passes over the sixth and final washer, which delivers directly into a vertical blending chest. This chest has a capacity of about eight tons at 31/2 per cent consistence and is the point of supply for the bleached stock screen room.

Bleaching Equipment

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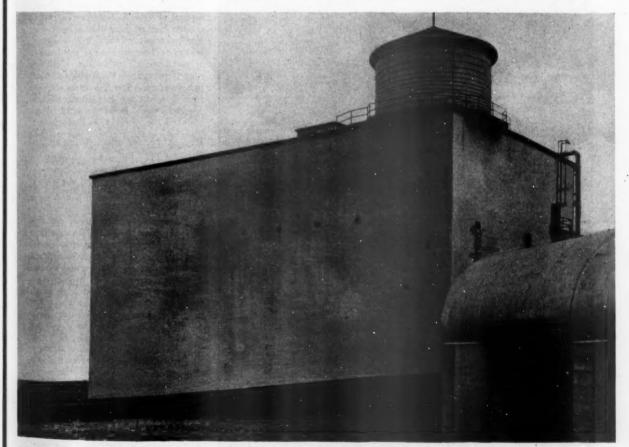
• All of the several reaction cells have reinforced concrete shells except the alkali cookers, which are welded steel pressure vessels. All of these units including the cookers have chemically resistant stoneware linings, installed by Canadian Stebbins Engineering and Mfg. Co., Ltd., who also installed the white glazed tile linings in the dilution chests and washer vats. Chlorinators and high density bleachers are of the standard Pulp Bleaching designs now used in several West Coast mills. The high consistence alkali cookers employ an internal circulating mechanism similar to the bleachers. The circulating mechanism of the chlorinators is rubber covered and the draft tubes are fabricated from segmental wood blocks and dowel pins without the use of any metal. Drives for all the reaction units are on the operating floor and consist of vertical motors mounted on top of vertical parallelshaft reduction gear units built for Pulp Bleaching Limited by Western Gear Works of Seattle, thus occupying a minimum of floor space. The drives for the chlorinators and blending chest are 30 horse power, and for the high consistence bleachers and cookers 75 horse power.

The three dilution chests are equipped with PBC 50-inch horizontal adjustable pitch propeller agitators, which are completely rubber covered. The acidulator has two rubber covered horizontal radial impellers giving zone agitation without any turnover from top to bottom of the cell. The white stock blending chest has a PBC "multipeller" agitator, which consists of a series of shrouded axial-flow impellers assembled into a central vertical shaft, also rubber covered.

The first stage washer is a rubber-covered Oliver-Young filter in a rubber-lined steel vat, equipped with two waterloaded press rolls. The other six washers and thickeners are Pulp Bleaching Company machines, and are assembled into tile-lined concrete vats constructed integral with the building. These vats are partially depressed through the operating floor so that the washers

are fully accessible without the use of ladders or platforms. The two high density washers are each equipped with an automatic dandy roll, whose pressure against the cylinder is controlled by the vacuum in the discharge leg, and from one to three main press rolls whose pressure is pneumatically controlled from the operating panel. A Hill tubular mixer in rubber-lined steel vat is installed ahead of the Oliver-Young washer to insure thorough dispersion of entering stock in the dilution water. Similar units are built integral with the several PBC washers. Four of these washers utilize submerged displace ment washing in addition to initial dilution and overhead displacement showers.

Nineteen centrifugal pumps built by Canadian Allis-Chalmers Limited handle stock, water and chemicals for the bleaching department and are driven by direct-connected motors ranging from 5 to 250 horse power. Ten of these pumps are of the vertical type.



A WINDOWLESS monolithic structure houses the bleaching and refining equipment at the WOODFIBRE, B. C., bleached sulphite pulp mill of the BRITISH COLUMBIA PULP & PAPER COMPANY, Ltd. 1 1 60,000 gallon wood tank on roof holds water for batch dilution.

 Wood stave pipe with rubberlined steel fittings was used for all stock and white water piping in the bleach plant, as well as in the longer lines connecting with other departments. This pipe was all built in place from continuous staves milled by Pacific Coast Pipe Company, Limited, of Vancouver, who also furnished two large water tanks for this project. The piping layout within the bleach plant being necessarily very intricate, all fittings were designed on the job by Pulp Bleaching, Limited, field engineers, fabricated locally and lined by Huntington Rubber Mills of Seattle. avoid any possibility of pockets where dirt might accumulate the finished internal diameter of all fittings was made equal to the bore of the pipe and the staves rabbetted to receive the spigot of the fittings, instead of the fittings being merely

inserted into the pipe as is the usual practice.

Operating Control

• The element of muscular effort is practically eliminated from the operation of this plant by a complete system of centralized controls. A group of conveniently located panels on the main operating floor contain all the various manual control devices, and a number of operations are controlled automatically.

All motors in the department are controlled from these panels. Many of the controls are interlocked so that equipment cannot be started in a wrong order. In some cases one sequence is provided for paper pulp and another for dissolving pulp, and this sequence interlock is itself controlled from the operating panel. Operation of the equipment is indicated by an extensive system of pilot

lights on the panels. In no case is a dark signal, which might be caused by a burned-out lamp, depended upon for indication. Instead, extra contacts on the motor-starting switches energize a green signal when a piece of equipment is ready to run but is not running and which changes to red when the equipment is started.

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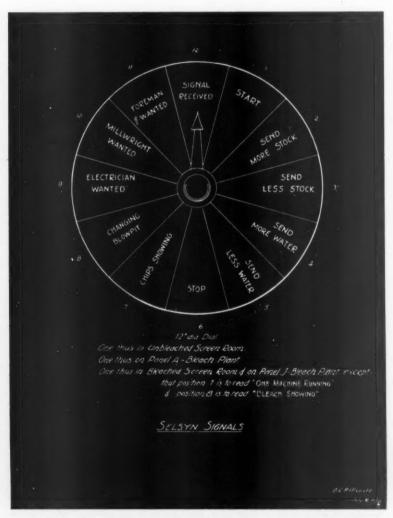
All stock, water and chemical valves used in normal operation are also electrically controlled from the operating panels. The valves are actuated by hydraulic cylinders which in turn are controlled by solenoid-operated pilot valves. Associated with the control devices are indicating and recording instruments which give the operator complete information as to pressures, temperatures, water flows and stock levels. Ammeters are included on the panels in all circuits where power

readings will give significant information to the operators.

One of these central panels, located near the unbleached thickener, controls all operations between delivery of the raw stock from the pulp mill and the end of the chlorinating cycle. A two-way signalling device operated by selsyn motors on the principle of a ship's telegraph serves to coordinate the unbleached screen room with the bleaching plant. Stock flow to the bleach plant is kept uniform and in step with the screen room by automatic electrically-operated level control in a small surge chest ahead of the unbleached stock transfer pump. The by-pass which governs the consistence at the unbleached thickener is controlled from this panel and can be switched to either manual or automatic control.

A second group panel controls all operations between the dumping of the chlorinators and delivery of the stock to the primary bleachers. Other group panels control all operations connected with the stock flow from primary bleaching to alkali extraction, and from this point to the final bleachers, with sequence change for operating on a simpler bleaching cycle. A final panel con-trols from the last dilution chest through the final washer and blending tank to delivery of the white stock from the bleach plant. Another selsyn-operated signal device synchronizes with the bleached screen room at this point.

An interesting example of automatic control is applied to the dilution water entering washers which are in some cases operated in a counter-current sequence. No stor-



THE SIGNAL CONTROL SYSTEM employed at WOODFIBRE is simple and efficient.

age of re-used water is provided at any point but the recirculating pumps draw directly from the seal box of the succeeding washer. This delicate balance of flow is maintained by controls operated from electrodes suspended in the washer vats and seal boxes. Induced currents of very small magnitude flowing through the electrode circuits actuate relays, which in turn control the position of the dilution water valves.

Another type of automatic control is applied to dumping the high consistence bleachers and cookers. The charge is dropped from these units in a period of about ten minutes, and at the same time diluted from about 14 per cent consistence to 3 per cent, an operation requiring forty thousand gallons of water. It is important that consistence be maintained uniform in the dilution chest so as not to upset the adjustment of the washer which is receiving stock from it. The operator adjusts the proper valves at the individual bleacher panels and can then turn the rest of the operation over to automatic control, which is operated by a batch type meter in the dilution water line. When the proper volume has been added this control will automatically shut off the water and set a visual signal for the operator. While any one bleacher is on this automatic control all other panels are locked out from opening any valves connected to the metered line.

Relays and switch gear are housed in a totally enclosed control room approximately forty feet long by eleven feet wide. This room is built at a mezzanine level with its ceiling about seven feet below the main operating floor, thus allowing conduits and pipelines to be run both over and under the control room and be freely accessible. The switching equipment, as well as all motors used in this project, was built by Canadian General Electric Company. The control panels were by Pulp Bleaching Limited, using electrical devices of Canadian General Electric make and instruments by the Bristol Company Limited and the Foxboro Company. Thirteen Bristol's Pyromaster resistance-type potentiometer thermometers are used to indicate and record temperatures in the several reaction cells. Foxboro, represented in Canada by Peacock Brothers Limited, furnished flow meters and liquid level recorders. A Sparling mainline meter is used to actuate the automatic dilution water control.

Bleaching From the Operators' Viewpoint

THE operators of the new Woodfibre bleach plant offer the following comments from their own point of view.

The plant was designed for one specific purpose only—to make the highest possible grade of paper, dissolving or higher alpha pulps, and to be able to accurately control the product within any specifications set by any customer. In the few months it has been in operation it has demonstrated conclusively that this goal has been fulfilled.

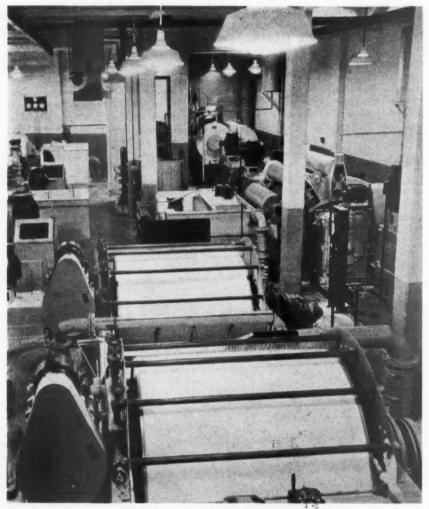
To this end the engineering, consulting and operating staffs concen-

trated to make the design as foolproof as could humanly be devised. Some of these points should be emphasized. For example:

It is obviously going to cause a serious spill in the bleach plant if the unbleached pump were pumping when the thickener is not running. If it is running but the repulper not functioning the stock will also pile all over the floor. Hence the three are electrically interlocked. The pump cannot be started in the unbleached mill, only from the unbleached control panel in the bleach plant. The interlock provides that the repulper must first be started, then the cylinder and last the pump. If the repulper kicks out, the cylinder and pump stop. If the cylinder stops the pump stops, and the pump



LEO C. KELLEY, Sulphite Superintendent and WILLIAM A. BAIN, Resident Engineer of the Woodfibre Bleached Sulphite Pulp Mill of the British Columbia Pulp & Paper Company Ltd.



THE COMPACT DESIGN of the new WOODFIBRE Bleach Plant leaves very little unused floor space, yet all equipment is convenient to operate and is easily accessible for maintenance.

alone can be stopped and leave the other two running.

• Since operators are human and will make mistakes, they might accidentally forget to change valves and might try to fill into and pump from a chlorinator at the same time. So the discharge and intake valves are electrically interlocked making this impossible. When the intake valve is open the discharge is automatically kept closed.

Washers No. 1, 2 and 5 reach discharge to a conveyor belt. Here again the electrical interlock provides that the sequence of starting must be conveyor belt, shredder, cylinder and mixer. If the first stops the others automatically stop, if the shredder stops the cylinder and mixer stop, if the cylinder stops the mixer stops. In this

connection the vats have been so designed that it is unnecessary for the pumps to stop, the overflow in each case being so designed that there is no chance of a spill over the floor, the overflow going back into the chests.

The other washers also have electrical interlocks making it impossible to run the cylinders if the repulpers are not running.

The valves to the bleach liquor measuring tanks are electrically interlocked through the starters, making it impossible to pump into more than one measuring tank at the same time and the starter controlling a tank is at the side of that tank, thus avoiding confusion.

When the cylinder vat levels are at the proper point the water dilution controls can be put on "Automatic" keeping the vat levels constant by solenoid control of the water discharge valves.

 In order to keep consistencies at the correct point in the dilution chests when dumping a cell, each individual cell control panel has an "Automatic" electrical control but-When the discharge and dumping water valves are opened as desired by the "Hand" control buttons, this "Automatic" button is cut into the line. It is electrically interlocked with the Sparling dumping water meter, cell discharge valve, and all other cell dumping water When in the "Automatic" valves. position it actuates a red light over its cell control panel, automatically prevents any other cell dumping water valve from being opened, and, when the Sparling meter has de-livered its required 40,000 gallons of water automatically shuts its cell dump valve and water valve. For further safety, before any other dumping water valve can be opened the operator has to go to this panel and change it from "Automatic" to "Hand" control. This feature also makes it imperative that the bleach plant be operated as a synchronous whole, because, since two or more cells cannot be dumped at once, the operator cannot allow his bleaching stages to get out of step. This, of course, is the only way to keep producing a uniform product day after

There are many other devices incorporated in the installation such as the above, designed for the specific purpose of correct and easy operation.

The batch system of bleaching is used throughout the bleach plant. Design is such that a chlorinator charge just fills a first stage cell, a cooker, the "acidulator" and a last stage cell. Thus in case there were any variations in the unbleached, each blowpit can be treated as an entity and bleached properly to obtain the finished characteristics desired. There is thus no storage between blowpits and bleach plant and blending is done only on finished pulp, and with such a bleach plant blending of even finished pulp is not actually necessary to insure uniformity, it being obviously uniform anyhow.

The operating staff of the bleach plant consists of two men per shift, an operator and assistant operator. The former are all graduate chemists, the latter experienced men taken from the unbleached screen room crew. A well equipped laboratory occupies one end of the operating floor and a graduate chemist is on duty each shift to give the operators

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any information necessary. They give the latter the bleachability of each chlorinator, the amount of chlorine to add in each stage, consistency tests of each cell, pH tests, amount of caustic soda to add, the viscosity in the various stages, etc., etc.

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• Practically every valve, motor or moving part is below the operating floor. All are operated by solenoid control from the operating floor.

The bleaching process consists in low density chlorination without temperature addition, washing acid over a rubber covered vacuum washer, addition of caustic soda for pH control, first stage hypochlorite stage, washing, pH control, 2nd stage hypochlorite stage, double washing on two washers in series, reduction (or other) treatment, washing, pH control, final last stage hypochlorite bleaching, washing, storage, consistency dilution control for screening, screening over flat screens, riffling, thickening, pH control and final blending in the finished storage chests.

For dissolving or higher alpha pulps the second stage hypochlorite stage is discontinued and a caustic or other cooking stage substituted.

Temperature control on 1st and last stage hypochlorite allows any desired temperature up to 120° F. to be reached. On the caustic cookers temperature and pressure can be regulated within wide limits.

The plant has no windows and was so designed for the specific purposes of having uniform light conditions at all times of day or night for matching color and preventing infiltration of dirt from the air. All air enters through a continuous oil screen and is heated by unit heaters thermostatically controlled.

• The net result of the gentle cooking, the extremely low pressures to which relief is carried in the digesters, their dumping system which does not break up the fiber, the multistage bleaching with its inherent lower temperatures and lower concentrations of chemical and the subsequent re-screening and riffling, result in a stronger, cleaner, more chemically pure pulp than can possibly be attained by any less complete plant. Without deliberately using excessive temperatures and

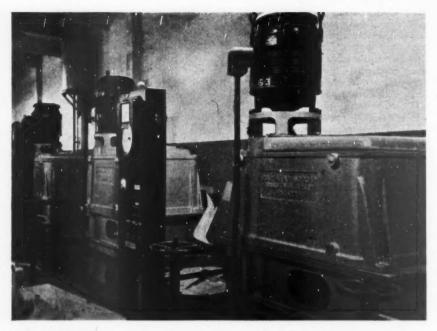


RAYMOND P. HILL President Pulp Bleaching Company

concentrations of chemical to accomplish degradation, for example, the minimum alpha (TAPPI test) that can be obtained on bleached paper pulp is 89%.



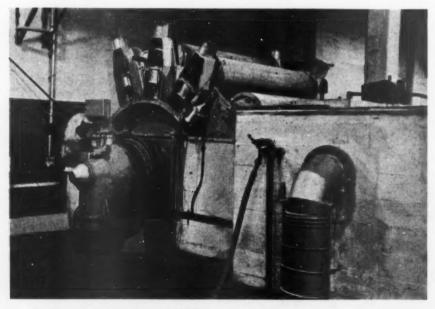
SIX HIGH DENSITY UNITS comprise the final bleaching stage / / An individual control panel and glass-covered inspection cabinet serve each unit / / A belt conveyor delivers stock from the preceding washer.



THE REFINERS are closed pressure vessels like a digester but have mechanical internal circulation and operate at 16% consistence.

For purity of dissolving pulps all pipe lines are wood stave with rubber covered fittings, or acid resisting steel, washers are rubber covered or clothed with acid resisting steel KA2SMo clothing, washer vats and cells are all tile lined, etc., and nowhere does the pulp come in contact with iron or copper. All water used from the unbleached stock

pump to the end of the drying machines is sand filtered or bleached stock white water originating from this sand filtered fresh water. The result is an ash content maximum of .06%, an iron content of not over 5 p.p.m., and any cuprammonium viscosity and per cent alpha demanded by the customer. Above all, the pulp is uniform.



WASHING IS A VITAL ELEMENT of the bleaching process / / / This washer, second in a series of six, has mechanical head box mixer, submerged displacement, automatic vacuum-operated dandy roll, hot water shower and three pneumatically operated press rolls.

Rescreening and Riffling

● To insure maximum cleanliness the pulp is rescreened and riffled after leaving the bleach plant, the original unbleached refining room having been overhauled for this purpose.

From the mix box in the bleach plant at controlled consistency the pulp flows by gravity to the bleached screen room. Here it is rescreened over twelve lines of three twelve plate screens each, flooded as primary screens, the overflow being screened over two lines of three screens each as tailings lines. The first screen of each primary line has .008 cut plates, the middle screen .007, and the end screen and all twelve tailings screens .006. All plates have Union Screen Plate fasteners and are Crodon chromium plated, and are style E undercut.

The bleached stock runner and the bleach plant operator are in touch with one another by their own selsyn signal controls. The only difference between the panels is that "Bleach Showing" and "One Machine Running" are substituted for "Chips Showing" and "Changing Blowpit."

After screening there is a mild thickening over five slushers, from which the stock is pumped up over eleven felt lined rifflers each 8 feet wide by 77 feet long. The velocity is so slow that baffles are unnecessary and theoretically perfect riffling accomplished.

From the rifflers the stock flows by gravity to four deckers with wood vats and rubber covered couch rolls, exactly the same as the three unbleached deckers. These were substituted in place of eight old type iron and wood construction slushers over which no consistency control was possible.

From the deckers at 2.5% A D consistency the pulp is pumped to two wood stave storage tanks built this year. One is 30 feet by 19 feet with Pulp Bleaching propeller type agitation, the other 24 feet by 20 feet with paddle wheel agitation.

Machine Room

THERE are two fourdrinier machines. No. 1, a Fullnerwerk machine 108½ inches in width, No. 2, a Black-Clawson 96 inches in width. Each machine is furnished from the storage tanks from its own

pump and Trimbey consistency con-

In 1937 the original reciprocating plunger type vacuum pumps for the suction boexs were replaced with Nash vacuum pumps, air receivers and water pumps. High vacuum can now be carried on the boxes.

The machines originally had only two presses in addition to the wire couch roll. In 1937 two pre-dryers were installed on each after the 2nd press and a third press after the pre-dryers. The pre-dryers are 48 inches diameter and the reversed third press built for 500 lb. per lineal inch pressure. They were designed and erected by the Woodfibre staff and made to specification by the Sumner Iron Works, the cone pulleys being made by Ross and Howard of Vancouver.

The result of the modernization of the wet end of the machines is that the pulp enters the cylinder dryers at between 50 and 55% A.D.

Between the 3rd press and Flakt dryers are thirty-eight dryers 49 inches dimeter on No. 1 machine and thirty-eight dryers 48 inches diameter on No. 2 machine.

Beyond the cylinder dryers on each machine was installed in 1938 a Flakt dryer section. These sections take the pulp at a maximum of 75% A. D. and, using only hot air, are guaranteed to dry 175 tons of pulp to 90% A. D. or 150 tons of pulp to 105% A. D.

The Flakt Dryers

• It is an established fact that when the water film is removed between a sheet of pulp in contact with a hot metal surface, such as the conventional cylinder dryer, and the metal, deterioration in color and strength ensue. This is not very marked up to 75% A. D. but proceeds rapidly after that particularly at the higher figures. With this installation of Flakt dryers at Woodfibre, the last possible factor detrimental to the highest quality product has been removed, so that the pulp is cooked, bleached and dried as mildly as is humanly possible.

The main parts of the Flakt drying chamber are, as follows: Housing, heating elements, guide rolls for guiding and supporting the pulp web through the machine, driving arrangement, Flakt arrangement for circulation of the air, arrangement for defusing the air within the machine, and apparatuses for heat recovery with fans.

The last mentioned apparatuses are placed on the outside of the drying machine proper.

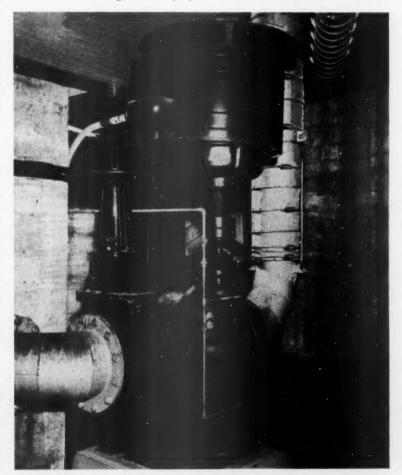
The Flakt dryer is designed to be placed after the drying cylinder section and the pulp web is transported through the drying chamber in vertical loops. Consequently no chains or other conveyors are necessary.

• The airtight drying chamber is built in vertical sections and equipped with two doors at each end. One door is also placed in every other section on the machine's tending side. These doors are opened and closed from a platform. Further every section is equipped with inspection windows and air shutters.

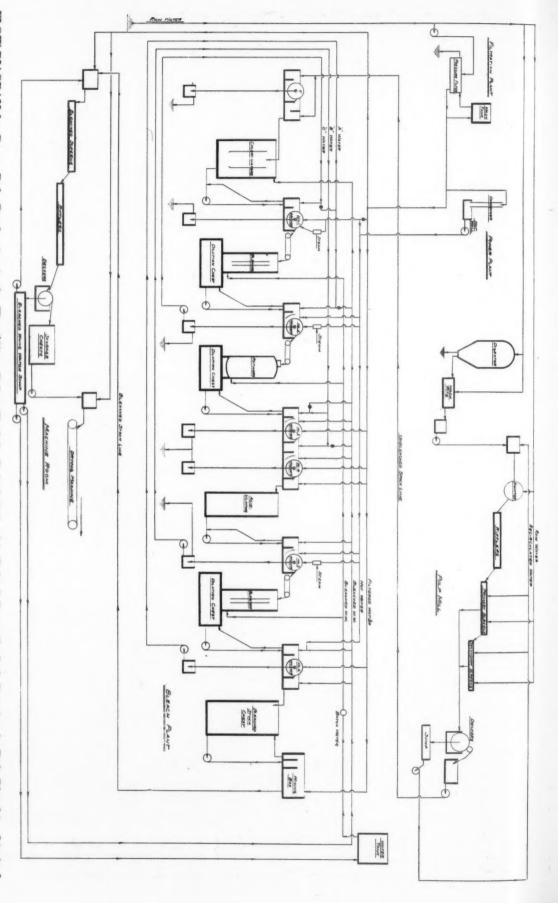
To enable the operator to get the sheet through the machine at startups two platforms are arranged over each other inside the drying machine. The pulp web is led up and down over a number of guide rolls placed zig-zag, one above the other, of which only the upper ones are driven. To take care of the shrinkage of the pulp web in the longitudinal direction friction couplings are placed in the chain drive so that the speed of the web is automatically adjusted in relation to the shrinkage. The lower guide rolls are mounted in SKF ball bearings and driven by the pulp web itself.

Between the various loops the various heat elements are placed and also a number of air spreaders. The heat elements are made of forged gilled pipes.

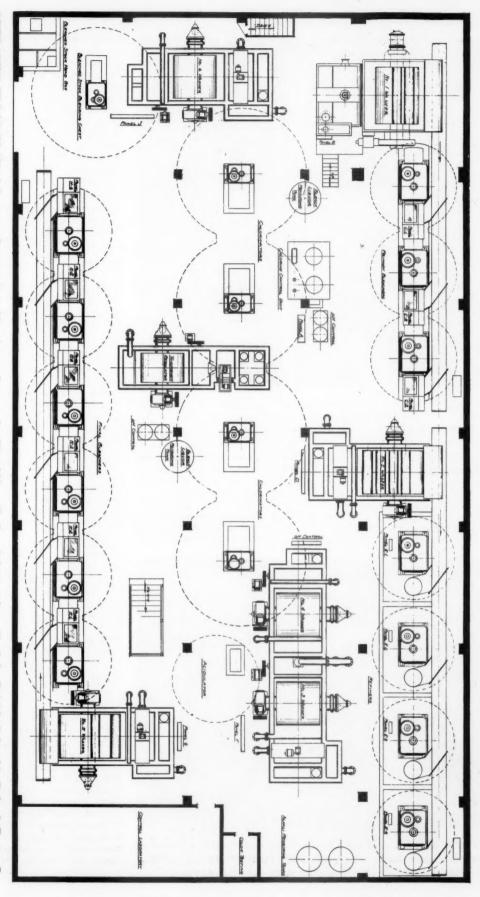
For each section is a circulation fan, consisting of a specially constructed propeller mounted in vertical air-cooled bearings and driven by its separate electric motor with V-belt drive. These circulation fans blow great quantities of air through the economizers placed below them to the air spreaders located between the pulp loops. The air spreaders, which work in pairs, spread the dry air uniformly along the whole pulp web. The drying air moves from the spreaders upwards parallel with the direction of the sheet and



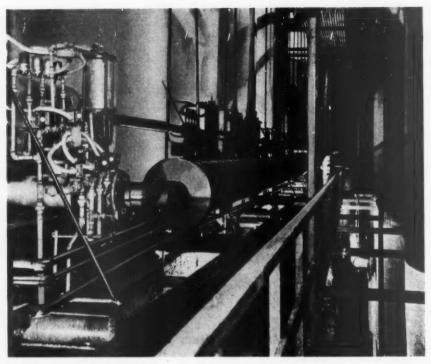
At WOODFIBRE most of the stock and white water pumps in the bleach plant are vertical units, which solved many problems of space layout.



FLOW DIAGRAM for Rayon Pulp Production in the Woodfibre, B.C. mill of the British Columbia Pulp & Paper Co. Ltd. Drawing by Pulp Bleaching Limited.



OPERATING FLOOR PLAN of the new ultra modern bleaching plant at the Woodfibre, B. C. sulphite pulp mill of the British Columbia Pulp & Paper Co. Ltd. Drawing by Pulp Bleaching Limited.



REMOTE-OPERATED stock, water and chemical valves of the final bleaching stage 1 1 1 328 solenoid-operated control valves are used in the WOODFIBRE bleaching system.

is sucked by the fan through the economizers placed close to the upper guide rolls.

The air spreaders are so constructed that the air strikes the pulp sheet at a right angle. The air can also be regulated along the whole width of the sheet. Such a

regulation is always advantageous if it shows that the pulp web leaves the cylinder part with a non-uniform moisture content.

• These two Flakt dryers are the first of the vertical end type installed on the North American con-



CONTROL HEADQUARTERS contains remote-operated starting equipment for 72 motors and many other electrical control devices in the WOOD-FIBRE bleach plant.

They were bought by the tinent. British Columbia Pulp & Paper Company, Limited from G. L. M. Hellstrom, president of Paper Machinery Limited of Montreal, agents for North America of A. B. Sven-ska Flaktfabriken of Stockholm, Sweden, through A. H. Lundberg of Seattle, Pacific Coast representa51

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Machine room ventilation was installed in 1938 by the J. O. Ross Engineering Corporation of Can-

Flexible Machine Drives

• Up until this year No. 1 machine was driven from the unbleached screen room water wheel. In order to keep balanced production with the various trims resulting from the different sheet sizes and calipers demanded by the companies using dissolving pulps this was changed to steam engine drive. Now both machines are driven by steam engine giving variable speed control and resulting in the maximum of flexibility. The exhaust from the engines is used for the dryers and ventilating system and the exhaust from these again for Boiler feed or through heat exchangers as hot shower water on the fourdrinier wires.

Beyond the Flakt dryers are the cutters. A new Hamblet cutter was installed this year to replace the old German cutter. Both it and the Black Clawson cutter on No. 2 machine are equipped with variable speed drives, etc., to cut any sheet size desired.

Each machine has its own 500 ton Hymac hydraulic press, operated from the 375 lb. water main and the customary accumulator.

A compact broke beater made by Andrew Fleck & Sons, Ottawa, handles the clean broke and trim. This is pumped back to the last stage dilution chest after the final stage bleaching in the bleach plant.

Technical Control

O expense has been spared throughout the plant to ensure complete control of the process from chips to the finished bale. A new main laboratory was completed early in 1938. This contains the offices of the Chief Chemist and Superintendent; a record and statistics room; a main analytical laboratory for raw material analysis, alpha, ash, iron, viscosity etc. tests; a balance room; solution and chemical storage room; a constant temperature and humidity General Electric controlled room equipped with mullen, M.I.T. fold, Elmendorf tear, tensile strength etc. testers; a dark room with standard color wheels and General Electric reflectance meter; a pulp wet strength testing room equipped with lightning mixers, beater, ballmills, sheet machine, press etc.; and a room for research.

In the bleach plant is a laboratory devoted exclusively to the needs of the bleach plant.

At the end of the machine room is a third laboratory for grading the finished pulp, equipped for final moisture testing, quick xylene moisture testing, sheet caliper, basis weight, sheet sizes, color, dirt count etc.

The laboratory staff consists of a chief chemist, assistant chief chemist, three chemists on days and a statistican, three shift chemists in the bleach plant, three graders and three testers.

Evolution of The Woodfibre Mill

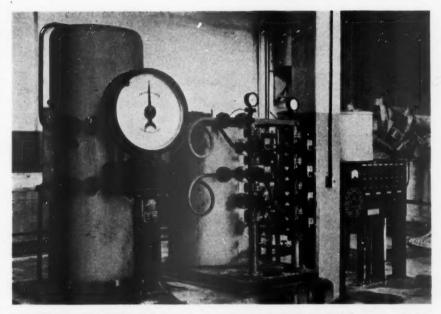
RECTION of the plant started in 1910. The first cook was made February 6. 1912.

The present plant bears little resemblance to the original. It was designed for 50 or 60 tons of unbleached whereas today it turns out 175 tons of bleached.

The original acid plant had no combustion chambers and three flat burners which were shortly increased to four. In 1922 three rotary burners replaced three of these and in 1925 the fourth was put in, each with its combustion chamber. There were six limerock towers at first and three more were built in 1919.

The three original acid pumps were driven first by a 20 h.p. d.c. motor, then when the seven were installed, by a 40 h.p., then by a 40 h.p. generator run as a motor, later by steam engine and finally by water wheel.

• The digester relief was handled until 1920 by a small cooler on the side of the digesters away from the acid plant which fed into four lined steel tanks each 25 feet high filled with water but no checker-work. Above these sat a small tank filled with limerock. A brick lined steel separator was used for the side relief, the liquor going to the sewer, the gas to the recovery tanks.



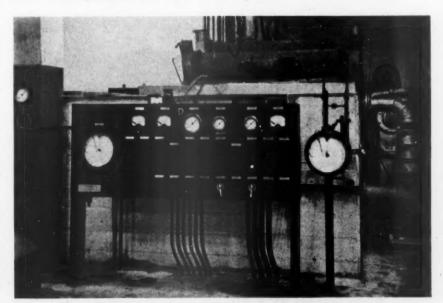
CONTROL STATION "A" governs all operations between the end of the unbleached screens and the end of chlorination , , , Selsyn operated semaphore on the electrical control panel gives instant communication with the pulp mill.

These were replaced by a conventional cooler and relief tower at the acid plant in 1920, except for the separator which was still used for side relief. In 1937 all three were discontinued and the present set-up, previously described, inaugurated.

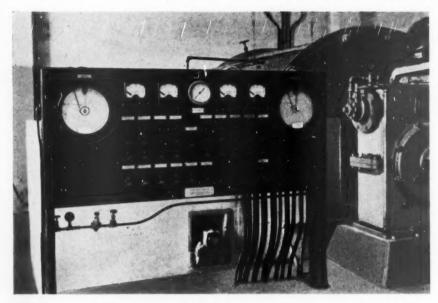
Two digesters only were erected, followed in 1914 by the third and in 1916 by the fourth. The steel for the first three came directly from Germany and were hand-

rivetted on location.

From 1920 for about two and a half years the digesters were blown instead of dumped but the blowpits were never designed for this and it was discontinued. Until 1933 no connection to the vomit stacks from the digesters existed, and when the cover was lifted off at the finish of each cook the gas and fumes were let loose throughout the top floor and chip bins.



ONE OF THE SEVERAL interstage panels which give the operator a picture of every variable and place every control at his finger tips.



PANEL "J" controls final washing and sends the stock on its way to bleached screens and drying machines.

• Originally the acid pump line to the digesters was also used as the waste liquor drain line with its subsequent trouble from interference. The acid pump was driven from the wood room water wheel so a digester could not be pumped if the wood room were down. Then the acid pumps were driven by water wheel direct connected and finally a steam engine was put in to be used in case of water shortage. Two digesters were pumped with this but the steam engine still remains, giving Woodfibre the honor of having the only digester house in North America housing a steam engine.

With the advent of Chemipulp in 1936 a motor driven direct connected acid resisting steel Cameron pump was installed, finishing the saga of digester pumping.

The history of acid making and cooking in Woodfibre covers almost every idea ever conceived by anybody in the sulphite industry.

The blowpits originally had perforated tile bottoms with their attendant troubles from liming up, breaking and coming loose in areas when the digesters were dumped or blown. They were gradually replaced with perforated wooden planks.



PENNSYLVANIA SALT Mfg. Company's chlorine and caustic soda tank cars, showing discharge system and method of unloading cars from barges.

The history of handling from the blowpits onward in Woodfibre is that of the evolution of modern methods from the very beginning. At first the dry pulp was forked by hand from the blowpits to an elevator, then run dry through Hollanders to break up the chips—and the Hollanders. Likewise the four knotters were the slotted cone type not suitable for dumped stock.

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 The screening system originally was composed of two Quillers, the rejects going to the sewer. A year later a third Quiller was added, the rejects saved up in a tank and screenings run about once a week on the pulp drying machine. In 1916 two Voight screens were added, all five screens acting as primary screens, the rejects going to the sewer. Two more Quillers were added in 1918, the five Quillers and one Voight acting as primaries and the other Voight acting as a secondary screen for rejects. In 1919 four Spangenberg rotaries were added as primaries but they gave so much trouble they were torn out within a year and three more Quillers added. Two lines of four twelve plate flat screens each were added in 1920 and from then until 1928 the system was in brief, the eight Quillers as primaries, the flats as secondary for the tailings, the rejects from the flats to one Voight for screenings, the other Voight screen junked.

In 1928 the "refining" room was added. This is now the bleached screen room previously described, only the plates were coarser plates. From 1928 until bleached stock was produced in 1938 the screened unbleached pulp from the old screen room was rescreened in the "refining" room. The coarse accepted stock from the Voight screen was turned out as screenings, and the rejects from the refiner tailings flat screens as a purer form of screenings called X-stock.

During 1937 and 1938 the changes were made ending up with the present efficient lay-out.

The machine room originally had but one machine but in 1916 a second was installed. The first machine came direct from Germany as did the greater part of the original mill machinery.

Many changes have been made in the wood break-down plant and wood room since its start but is is still not modernized. Even its location has been changed. For several years the slabs, millwaste, etc. were piled in the yard and on the beach, and much of the present village is built on these slabs on what was once ground completely covered at high tide. The chips were all put through a dry kiln when the mill was first started but this burned down in 1916 and was never replaced. There are three Stetson-Ross Barkers now, two chippers, two primary shaker screens, two vibrating and two rotary secondary screens. Chip storage is in chip bins over the digesters.

Steam Plant

· Steam was first supplied by three marine boilers brought out from Germany. They were coal burning, hand-fired at first but soon were changed to oil burning. They are still in service and will produce between 10,000 to 12,000 lb. per hour each at 125 lb. pressure. They now furnish only the machines and low pressure steam. In 1913 the first three wood refuse boilers were put in at the pulpwood mill. Their number has gradually increased to thirteen, each rating approximately 10,-000 lb. per hour at 150 lb. pressure. They now burn not only the mill waste but coal as well fed by a single underfeed stoker each.

Water and Power

THE water supply from the mill comes from Mill Creek and Cedar Creek. The former is fed from a snowfield but has no storage. Two lines are tapped off it, one "High Pressure Mill Creek" giving water to the mill at 250 lb. working pressure, and the other "Low Pressure Mill Creek" at 75 lb. working pressure. Cedar Creek is fed from three lakes at about 2,800 elevation. Dams in these give

4,651 acre feet of storage in Henriette Lake.

800 acre feet of storage in Brennan Lake.

350 acre feet of storage in Sylvia Lake.

In order to obtain the maximum storage possible a tunnel was driven through the mountain tapping Henriette Lake 80 feet below the crest of the dam. The run off from the three lakes and the tunnel discharge to Cedar Creek. From a diversion dam in this Creek the water is delivered to screen house and penstock. This gives a maximum flow of 34 c.f.s. and 865 foot head working pressure.

Since the start of the mill, water power has been used for prime movers and driving generators. Originally all electricty was D.C., now there is both A.C. and D.C. During 1937 and the start of 1938 an addition to the power plant was built and two steam turbine driven generators installed, one a 1,000 K.W. the other a 600 K.W. at nominal rating, both producing 550 Volt A.C. current. Today, in addition to this power produced from steam, there is produced by water:

From Cedar Creek 1,000 h.p. of electrical energy; 1,060 h.p. of mechanical energy.

From Mill Creek 230 h.p. of electrical energy; 1,245 of mechanical energy.

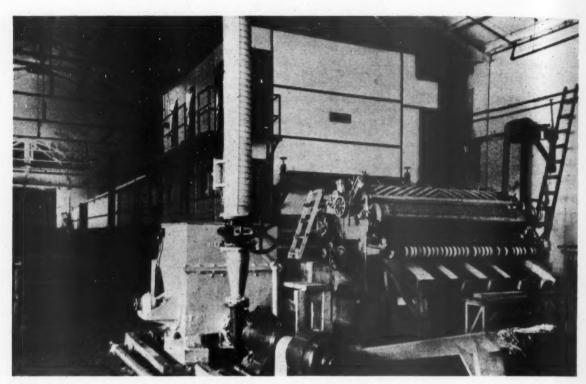
Water Filtration

• An abundant supply of exceptionally pure water is available from a group of glacier fed lakes. The water has very little organic or mechanical dirt and is very pure chemically. The quality is such that no chemical treatment is required for either boiler feed or process use, and for the greater part of the year no clarifying would be required under ordinary conditions. However, to insure crystal clear water throughout the entire year a complete installation of sand filled pressure filters was installed.

This system, having a capacity of sixteen million gallons per day, was



MACHINE ROOM AT WOODFIBRE 1 1 1 Two fourdrinier wet ends, new predryers specially designed, standard cylinder drying sections and Vertical Flakt Dryers 1 1 The result is mild drying of the high grade sulphite pulps.



FINISHING END OF No. 1 MACHINE showing Vertical Flakt Dryer, new Hamblet cutter, Fleck broke beater and pump for returning stock to chest from beater 1 1 No. 2 machine is at the left.

furnished by the Shibley Company of Seattle and Vancouver, B. C. (now the Northwest Filter Company). The seven filter units, which are among the largest pressure filters built to date, each 9 feet in diameter and 43 feet in length, are erected in the open a short distance from the bleaching plant.

All the valves in connection with the filters are hydraulically operated Iowa valves actuated mechanically by pilot control. Backwash is from a 60,000 U. S. gallon capacity wood stave tank located on a tower 40 feet above the base of the filters. It is automatically fed from the filtered water main by a six inch altitude valve.

The tailraces from the various water wheels are led to a sump from which a 250 h.p. synchronous motor driven direct connected pump pumps to the filters.

The acid plant, digester house, wood room and unbleached screen room use unfiltered water but from thereon filtered water is used exclusively.

Hot water for washing and heating purposes in the bleached plant is obtained by pumping filtered water to the barometric leg of the steam turbo-generators and through the surface condenser of the Erie engine exhaust. The accompanying drawing of the plant flow sheet shows the water usage better than a written explanation.

Townsite

HEN construction of the Woodfibre Plant started in 1910, Mill Creek as it was then called, consisted of a few shacks left over from former shingle sawing operations.

The first buildings put up were four houses, the hospital and store, the main bunkhouse being over the store. The present Nos. 1 and 2 bunkhouses were built in 1912, No. 3 in 1913 and No. 4 in 1936. The first houses were all built on the right hand side of Mill Creek, but in 1916 building started on the top of a rise on the other side. Here is now located the football and baseball field also. Between the Creek and the hill townsite is the Community Hall, built in 1926. In 1937 a new townsite was started on top of a 120 foot rise behind the first

townsite. The village now consists of 36 houses on the first site, 4 bunkhouses, a cook house, a refrigerator house, a store room and a bake house, a store, a main office, a hospital and a pool room. The second site comprises 24 houses for whites, 22 for Japanese, 5 Japanese bunkhouses, 1 Japanese cookhouse, 2 Japanese apartment houses, a Japanese bathhouse, a Japanese school and a four room school which includes High School. Between the two sites are the Post Office, Time Office, Barber shop and Community Hall. The last has a stage and moving picture installation, basketball floor, badminton court, etc. On the last site are the 14 new houses built in 1937. Last but not least is the tennis court which has a wooden deck and the bathing beach where the water temperature is never much above freezing.

In 1935 a third pulp warehouse was built.

As part of the changes to the townsite necessary to the installation of the bleach plant there were installed during 1937 a car ferry slip to handle cars of chlorine, caustic soda, etc., and a new passenger dock.

Personnel

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m n• Lawrence Killam is president and managing director of the British Columbia Pulp & Paper Company whose headquarters are in Vancouver, B. C. The company operates two bleached sulphite pulp mills both producing rayon grades. Besides the recently improved Woodfibre plant the Port Alice, B. C., mill on the Northwest side of Vancouver Island has been the scene of much modernization work in recent years.

O. A. Jorgenson is assistant manager and treasurer, and Miss Ethel M. Dominy is secretary of the company.

The staff at Woodfibre is cosmopolitan representing a number of different nationalities.

The plant manager, E. P. Brennan is Irish American.

The technical adviser, A. Christensen is Norwegian.

The resident engineer, W. A. Bain, and the power plant chief engineer, W. Arnold, are native-born Irish.

The office manager, P. V. Parker and the chief chemist, W. R. Payne, are from London, England.

The acid plant foreman, J. Bidin, is Italian.



CLOSE UP of one of the two vertical type Flakt pulp dryers.

The digester house foreman, F. Haar, is German.

The screen room, machine room and bleach plant foreman, F. Hebert, is Channel Island French. The wood mill foreman, W. Smith, the machine shop foreman, W. Macgregor, the chief electrician,

J. Dawson, and the sulphite superintendent, L. C. Kelley, are Canadian born.



CLEAN WATER, CLEAN PULP / / Sixteen million gallons of crystal pure water is the daily capacity of the new WOODFIBRE pressure filter plant.

READY TO SERVE THE WEST COAST INDUSTRY— ON BOTH SIDES OF THE BOUNDARY

Complete bleaching and purification plants, as at Woodfibre, B. C.



Special equipment for any application of chemically treating, washing, dewatering or agitating fibre suspensions.



PULP BLEACHING COMPANY

ORANGE, NEW JERSEY

PULP BLEACHING LIMITED

MONTREAL, CANADA

Contracting Engineers in Cellulose Purification

Laminated Paper Boards Organized in San Francisco

Acquires Laminating Department of Former Boxboard Products

Laminated Paper Board is the name of a new San Francisco company which has taken over the laminated department of Boxboard Products, which has gone out of business after selling its paper box factory to Fleishhaker Paper Box Company.

Laminated Paper of Boards is Roy P. Cole and associated with him as operating manager is L. P. Werdern. Mr. Cole formerly was with the Crown Willamette Paper Company, Standard Oil Company and was sales manager of Federated Metals Corporation. Mr. Werdern is a native of Vienna and received his paper manufacturing training in Europe. He was brought to the coast by Boxboard Products from the Peninsular Paper Company of Ypsilanti, Michigan. For the past year he has had charge of Boxboard's laminating department.

The company says this laminating machine is the only one west of Chicago which can make three-ply boards. The machine can manufacture laminated boards of any description, such as cover stock, boards for folders, cracker layers and glassine-finished boards for paper box manufacturers. Experiments are bieng made on the use of cellophane in the laminating process

Capacity of the plant is from two to three tons in an 8-hour day. Raw material is bought from western paper mills.

• The equipment consists of three units: 1, the pasting unit; 2, the drying unit, and 3, the sheeting unit.

Mr. Werdern developed this pasting machine. In this step of the process the paper is run off the rolls and through paste. The sheets are then brought together, pasted and sent on to the drying machine.

National Adhesives Company developed a special adhesive for this glassine lamination.

The dryer consists of eleven drums, each three feet in diameter. The laminated sheets are run between these revolving drums for drying. Drying is done with and without heat. When it is desired to heat the drums, steam is used.

The dryer was made by Beloit Iron Works and formerly was a lining machine in the Fibreboard Products, Incorporated plant at Stockton.

The sheeting machine cuts the boards to the desired sizes. The unit can turn out glassine-lined boards from 25 to 36 inches and other grades from 25 to 45 inches.

Gruenberg Retires From Box Business

- One of San Francisco's well known paper box factories—Boxboard Products—has been sold to Fleishhacker Paper Box Co. and its plant on Paul Avenue has been dismantled.
- R. J. Gruenberg, founder and owner of Boxboard Products, retired after being more than 40 years in the paper box business in San Francisco. In August he was in Detroit to meet his son, Max, enroute home from a world trip.

Walter Mueller Visits Camas

• Walter Mueller, superintendent of the Los Angeles bag factory of the Crown Willamette Paper Company, division of Crown Zellerbach Corporation, has been at Camas recently visiting his mother and his stepfather, Mr. and Mrs. James Duval.

Dan Phillips Wins Golf Tournament

• The recent Longview Fibre Company tournament was won by Dan Phillips, who defeated Carl Fahlstrom 5-4 in the final round. "Champ" Phillips entered the meet with a handicap of 15, while Mr. Fahlstrom was handicapped 10.

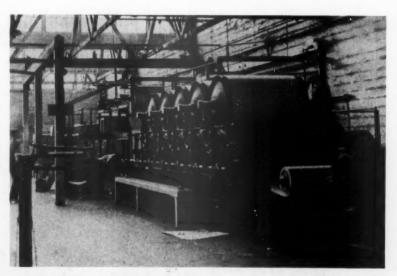
A tennis tournament among plant employees is now in progress, with 12 entries

Western Candy Box To Rebuild After Fire

• The Western Candy Box Company at 1243 East 63rd. Street, Los Angeles was destroyed by fire August 12. The blaze started from an unknown source and quickly spread to the entire building. One fireman was killed in a fall from a ladder while fighting the fire and a second suffered a skull fracture from a similar fall. Fred E. Danklefs operates the plant. Damage is estimated at from \$40,000 to \$50,000 which is partly covered by insurance. None of the twenty employes were injured in escaping the burning building.

Cooper Gives Paper Talk

• E. W. G. Cooper of the Crown Willamette staff at Camas, spoke before a combined group of Kiwanis clubs at Washougal, Wash., on Sept. 7, discussing the history of paper making and its early methods.



LAMINATING MACHINE in the plant of LAMINATED PAPER BOARD in San Francisco.

General Business Conditions

by E. J. FARINA, Vice-President in Charge of Sales, Fibreboard Products, Inc.*

• In his talk before the Pacific Coast Paper Box Manufacturers Association at the 24th meeting in Del Monte, last July, E. J. Farina, vice-president in charge of sales of Fibreboard Products, Incorporated, presented an analysis of general business conditions through an interpretation of the six accompanying charts. He began with the Index of Production.

Index of Production

◆ This chart does not represent a composite or over all average. As you will note, it is divided into two sections, durable and consumers goods. The durable goods group composed is of iron, steel, cement, glass and other industries of a nature that does not require immediate replacement. This particular group has very wide fluctuation in activity. You will note the activity for the year of 1937 was practically even with that of 1929, whereas for the first part of this year, activity has dropped to 50% of last year's total. The consumers' goods composed of

*Presented at the 24th meeting of the Pacific Coast Paper Box Manufacturers Association, Del Monte, California, July 10-12th. textiles, leather goods, tobacco and petroleum refining is of such nature that as soon as it enters the channel of consumption it is ready for replacement. This particular section of the economic set up includes the paper industry. When compared with the durable group, it is noted the fluctuation and activity is quite limited. It may be well to point out how fortunate dealers in paper goods are when compared to the members of the durable goods group.

Bank Debits

• In order that the bank debits for U. S. and Twelfth Reserve District may be comparable, we have recomputed them on the basis of the total for 1929. Although 1933 is nearly the same for both the U. S. and Twelfth Reserve District it is interesting to note that the decline is slightly greater for the total of the U. S. and the set back in 1938 is not quite as great. This should be fairly representative of conditions both in the country and on the Pacific Coast.

General Business

• We have compiled a chart representing new supply (production or

imports, or both), and demand (consumption or exports, or both). Every industry for which reliable data are available has been included. The seasonally adjusted figures were weighted according to their relative importance in the nation's total business, using the Census Reports of 1923, 1925 and 1927 as guides. The weighted figures were then combined for the total supply and demand lines.

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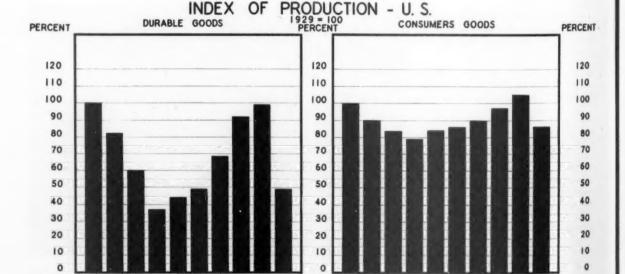
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The chart is to be interpreted as follows: As the new supply becomes greater than demand, stocks accumulate. In a short period of time, these stocks on hand become burdensome. The business picture is distorted. It becomes necessary under these conditions for new supplies to be reduced. They must decline not only to the level of demand but even below demand so that the burdensome inventory may be reduced. As new supplies decline, prices also decline. This gives an incentive to buyers to take over these burdensome stocks, increasing demand or sustaining demand above the new supply. A rising production increases purchasing power, which in turn increases demand.

'32 '33 '34 '35 '36



'32 '33 '34 '35 '36 '37 '38

Employment and Payrolls

• The national employment and payrolls indices have long been used as busines guides. They are important from several different points of view. (1) The trend of employment indicates the trend of production. (2) The payrolls index is an indication of the total buying ability of manufacturing employees. (if labor receives more than its share of the total product, less labor and more capital will be used. If such a maladjustment is not corrected, business activity will decline. Once corrected, business will increase).

Even during the period of intense activity of 1937 it is noted that there was a relatively small increase in the total number employed. According to this chart, it is evident that longer hours must have been worked on account of substantial increases in payrolls. Since the latter part of 1937 efforts have been made to keep people working because since that time, you will note payrolls have dropped a great deal faster than employment.

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Purchasing Power

• In the economic sense of the word, production, which is the basis of purchasing power, is the creation of valuable goods and services. Industry and agriculture are by far the most important sources of purchasing power. However, the movement of industrial and agricultural products is also an important part of production and influences purchasing power. Since industrial payrolls, farm income, and railroad activity (railroad gross income) are

so basic in our economic life, a composite of these indices serves as a measure of purchasing power. The purchasing power index is valuable as a sensitive guide to actual consumer consumption. In the compilation of the purchasing power index, each series—farm income, factory payrolls, and railroad gross income is adjusted for seasonal variation and put on a common base (1923-25 100), for comparative purposes. The composite index is then adjusted for the "cost of living," and the result is the purchasing power index.

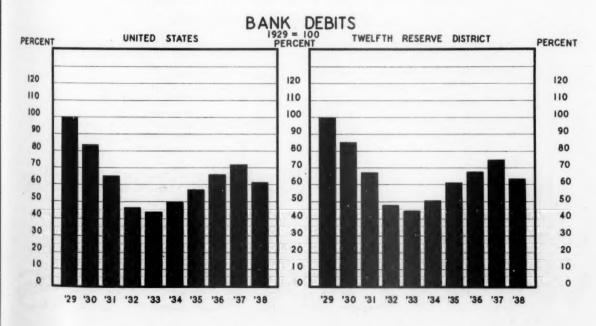
The comparison between purchasing power and demand index is shown. This index of demand is for the same series of figures used on the general business chart. The comparison between purchas in g power and the demand index is shown. This is to bring out two important considerations: namely, the level of purchasing power as compared with demand and the effect of changes in the trend of purchasing power upon the trend of demand. The first consideration is the comparison of the level of purchasing power with the level of de-When credit is easily obtained and confidence is high, purchasing power based upon production is likely to fall below the level of demand. This phenomenon indicates that an over expansion of consumer credit is occurring. Such a condition is sure to intensify the deflation that will take place when the fundamental supply-demand forces and price relationships become so maladjusted that a correc-

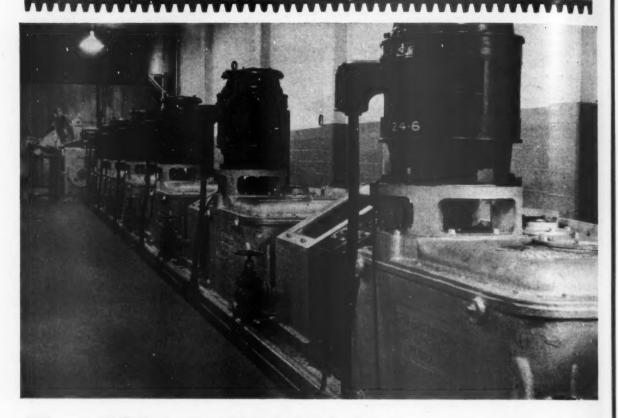


E. J. FARINA Vice-President In Charge of Sales Fibreboard Products, Inc.

tion becomes necessary. A sound recovery will not occur until the supply-demand and price maladjustments are corrected and until purchasing power remains above demand long enough to allow for the liquidation of the inflated debt structure created during the previous "prosperity" period.

The second consideration is the effect of changes in the trend of purchasing power upon the trend of demand. From the chart, it will be noted that they closely parallel one another.





For Woodfibre --18 Bleach Engine Drives

Built for PULP BLEACHING LIMITED
By Western Gear Works

In Pulp Bleaching Limited's installation for the British Columbia Pulp & Paper Company, Ltd., ALL agitator drives were manufactured in the Seattle plant of the WESTERN GEAR WORKS. The WESTERN GEAR WORKS produces all types of speed reduction gears for pulp and paper mill application.

PARALLEL SHAFT — RIGHT ANGLE — VERTICAL SPEED REDUCERS

Made with

HERRINGBONE—HELICAL—SPUR—BEVEL
—SPIRAL BEVEL—WORM GEARS

"Gear Products
From Gear Specialists"

Western Gear Works

SSOCIATED WITH

PACIFIC GEAR & TOOL WORKS

SAN FRANCISCO SEATTLE LOS ANGELES

WESTERN GEARS

Twelfth Reserve District Department Store

Y

• This series may be of interest on account of sales made by boxmakers to that class of business. It is interesting to note the trend taken by the sales from 1929 to 1933, and the substantial increases made since that time. It is worth while to point out that the inventories were reduced quite substantially from 1929 to 1933 and there is no evidence of them even approaching former levels. The average for 1937 shows an increase of 20% over 1936 but during the last part of 1938 this has been reduced to the levels of 1933, 1934, 1935, 1936.

John Burke Talks at Big Pienic

• Paper mill workers celebrated Labor Day at Camas, Washington, with a big meeting here. John P. Burke of Fort Edwards, N. Y., president of the Inter-national Brotherhood of Pulp, Sulphite and Paper Mill Workers, was the principal speaker for the labor group. James A. Taylor of Seattle, state A. F. of L. president, was also a guest at the gather-

Steam Jet Vacuum Cooling

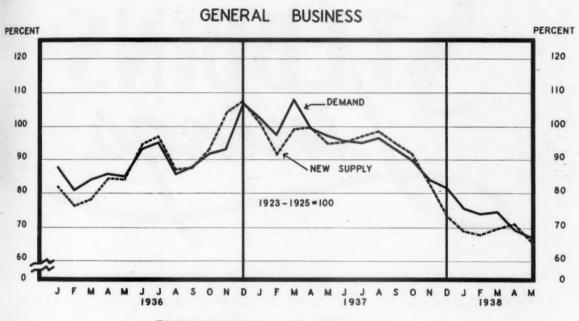
 Vacuum cooling adaptable for either continuous or batch cooling within a range of 35° to 65° F. is described in a leaflet published by Westinghouse Elec-trict & Manufacturing Company. These steam jet units meet a wide range of applications and processes requiring a com-bination of cooling action and evapora-

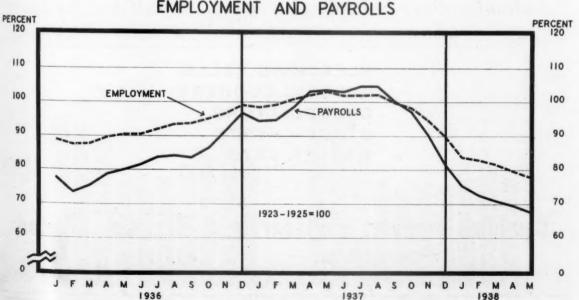
tion, degasifying or crystallizing action.
Copies of the leaflet, F. 8445 may be secured from the nearest district office of Westinghouse Electric & Manufacturing Company, or from headquarters at East Pittsburgh, Pennsylvania.

Randall Visits Coast Mills

● Herbert T. Randall, chief engineer of the Champion Paper & Fibre Company of Hamilton, Ohio, visited Pacific Coast mills in August.

Mr. Randall, who was president of the American Pulp & Paper Mill Superintendents Association in 1934, is deeply interested in aviation and flies his own plane.





We are Proud that



Were installed in the New Bleach Plant of the British Columbia Pulp & Paper Co., Ltd., at Woodfibre, for the

BLEACHING CELLS CAUSTIC COOKERS CHLORINATORS STOCK CHESTS WASHER VATS

Canadian Stebbins Engineering & Mfg. Co., Limited

Drummond Building • MONTREAL

Y

Puget Sound Pulp & Timber Reports First Half Loss

• A net loss of \$53,997 was reported by the Puget Sound Pulp & Timber Company for the first six months of 1938, after depreciation and obsolescence. Profit before depreciation and obsolescence was \$21,142.

During the first six months of the current year, the company produced 11, 687 tons of pulp. Sales of pulp for the period amounted to 12,382 tons, resulting in a slight reduction in inventory. Sales in June were 3,040 tons.

New Plant at Capacity

 Balance sheet as of June 30, 1938, shows total resources of \$5,826.877. Current assets aggregated \$519,695 compared with current liabilities of \$499,843. Included in current liabilities was an item of \$168,156 representing accounts and contracts payable on the new construction, due to the fact that the cost of the new plant exceeded by some \$200,000 funds raised through the sale of preferred stock. Inventories of pulp at cost, logs at lower of cost or market, and raw materials and supplies at cost were reported to total \$316,593 on June 30, 1938, compared with \$397,314 on December 31, 1937.

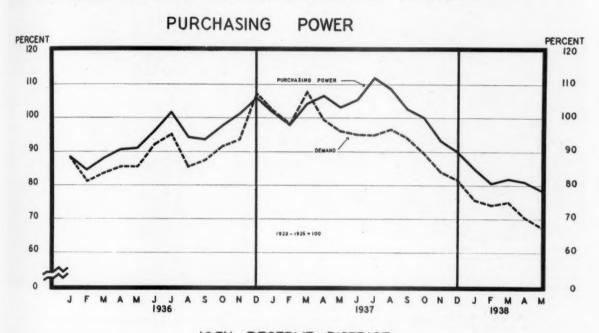
Construction of the new plant of the company adjacent to the already existing plant at Bellingham was completed May 15, 1938. The plant is now in full operation with a capacity of 40,000 tons of pulp a year which, together with the adjacent Bellingham plant and mill at Anacortes, will give a combined pro-

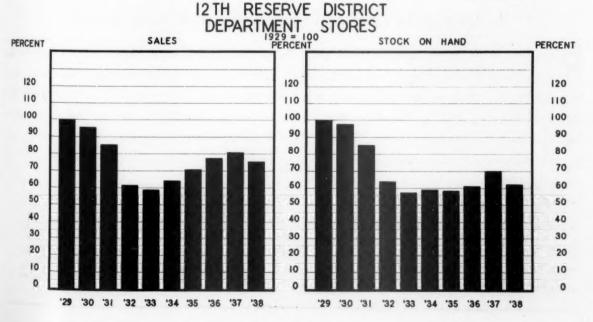
duction in full operation of 105,000 tons of pulp a year.

New Orders Booked

• Orders have recently been received for more than 23,000 tons of pulp, equivalent to about 100 days' capacity operation of the Bellingham mills. It is stated that the management is endeavoring to secure additional orders and hopes to benefit from the current improvement in business.

Independently audited report of the company for the year 1937 shows net profit of \$254,993 after depreciation, amortization, depletion of timber lands, income taxes and surtax on undistributed profits, equal to 83 cents a share on 251,836 common shares after allowing for the regular preferred dividends paid during the year.





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13 BRISTOL'S PYROMASTER ELECTRIC THERMOMETERS

now serving British Columbia Pulp & Paper Co.



here shown has its own control panel equipped with a Bristol's Pyromaster Thermometer.

... for indicating and recording reaction temperatures in Company's new bleaching and refining plant

DEFERRED to as one of the industry's most outstanding developments, the new bleaching and refining plant of the British Columbia Pulp and Paper Co. Ltd., at Woodfibre, B. C., is relying on thirteen Bristol's Pyromaster Potentiometer Resistance Thermometers for watching reaction cell temperatures.

For this important service, Bristol's Pyromaster provides extreme sensitivity and responsiveness. No compensation is necessary for temperature variations along the connecting cable. The indicating dial is easy to read,—at

a distance or from an angle. The twelve inch round chart has uniform graduations, and also is easy to file. There is no need to disturb the bulb when checking accuracy. For a complete discussion of these and other Pyromaster advantages, write for a copy of Bulletin No. 50-7H.

THE BRISTOL COMPANY, WATERBURY, CONN. Branch Offices: Akron, Birmingham, Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco. Seattle, Canada: The Bristol Company of Canada, Limited, Toronto, Ontario. England: Bristol's Instrument Company, Limited, London, N.W. 10.

BRISTOLS



Hercules Offers Ethyl Cellulose for Insulation

• In a recent advertisement the Hercules Powder Company suggests that the fundamental properties of ethyl cellulose suggests its use for cable lacquers and for extrusion plastics for cable insulation."

The ad goes on to say, "For cable lacquers ethyl cellulose is flexible at extremely low and high temperatures. It is tough, has high dielectric strength, and offers effective protection against mineral oil, gasoline and chemicals. It has a tolerance for many waxes (to give "slip"), and it is also miscible with a wide variety of resins and plasticizers.

"For cable insulation ethyl cellulose can be extruded as a plastic around wires. Its dielectric strength, toughness, and flexibility at extreme temperatures suggests its usefulness in underground cables and elsewhere where bending, friction, strains and high loads are encountered.

"The markets for cable lacquer and cable insulation are very large. Ethyl cellulose is suggested to those who are trying to reach these markets."

Ethyl cellulose can be made from high grade bleached sulphite wood pulp of the type known as dissolving pulp.

Japanese Rayon Exports Decline

The Japan Rayon Producers' Association reported that rayon yarn exports during the first half of 1938 declined by 60 per cent in volume and 64 per cent in value from the figures for the corresponding half year of 1937; rayon piece goods exports fell off 28½ per cent in both volume and value, compared with shipments in the first 6 months of last year.

Japanese Cellophane Makers Dissolve Association

The Cellophane Sales Company, a joint concern made up of most Japanese manufacturers of transparent sheeting has dissolved following the withdrawal of the Japan Celluloid Company, one of the leading members of the group, according to a report appearing in the June 9 issue of the "Nikkan Kogyo Shimbun." The sales company will hold its last general meeting on June 22 to approve the company's accounts for the present term, and other business matters. Plans are being made for the organization.

Plans are being made for the organization of an industrial association which, it is considered, will be a step forward toward a stronger control over the industry, since the Toyo Cellophane Company and other concerns not members of the Cellophane Sales Company are likely to be forced to come under control of the projected industrial association upon its organization, in accordance with the provisions of the law governing industrial associations.

Upon the dissolution of the joint sales company all the member companies are expected to go into production without restriction on output. Inasmuch as transparent sheeting stocks are reported to total 20,000 reams at present, it will mean a flooding of the market, should restrictions be laid aside. The decreasing demand and the depressed state of export trade-may be expected to further demoralize the market.

The companies belonging to the joint Cellophane Sales Company are reported to have exercised production curtailment amounting to 8,000 reams a month. In spite of this, however, stocks have reached a total of 20,000 reams.

The monthly productive capacity of the leading Japanese concerns manufacturing transparent cellulose sheetings is reported to be 41,000 reams per month. Approximately one-half of this amount is produced by two companies—The Japan Celluloid Company and the Showa Transparent Paper Company. The remaining half is the output of 10 companies turning out between 1,000 and 5,000 reams per month. (Office of the American Commercial Attache, Tokyo.)

Decrease in Japanese Exports of Transparent Sheetings

● Exports of transparent sheetings from Japan during the first 4 months of 1938 aggregate 682,418 pounds at a value of 477,931 yen (\$138,026 at current exchange rates). The 1938 volume shows a reduction of 1,075,017 pounds compared with the corresponding period of 1937 and of 1,166,817 pounds compared with 1936.

Exports of fiber plaits combined with cellophane during the first 4 months of 1938 aggregated 1,873,000 bundles (1 pound per bundle) at a value of 630,405 yen (\$182,076 at current exchange rates) against 2,723,000 bundles during the first 4 months 1936. (Office of the American Commercial Attache, Tokyo.)

Second Quarter Rayon Production Below First

Rayon yarn production in the United States during the second quarter of the year dropped to 53,300,000 pounds from 57,500,000 pounds in the first quarter. This is the lowest quarterly production figure since 1934, states the Rayon Organon, and was caused by the slow demand situation, the usual seasonal influences, and the adequate size of yarn stocks held.

Dr. Wallach Vacations on Coast

 Dr. R. N. Wallach, chairman of the board of the Sylvania Industrial Corporation, manufacturers of cellulose products, vacationed on the Coast late in July and early in August with Mrs. Wallach and their daughters.

Sylvania, with headquarters in New York and works at Fredericksburg, Virginia, produces Sylphwrap cellophane, and are represented on the Pacific Coast by Blake, Moffitt & Towne.

Paper Making Studies Completed By Bureau of Standards

● The completion of experimental papermaking tests in the Bureau's semi-commercial paper mill, made to find the effect of papermaking processes and materials on the strength and stability of book papers, marks the end of a series of studies of this kind extending over the past 8 years.

The first part of this work dealt with writing papers. Papers were made from different grades of representative commercial rag and wood fibers used for such papers, and were given thorough chemical and physical tests to find the effect of fiber quality; of the beater-sizing materials, alum, rosin, and starch; and of the surface-sizing materials, glue, and starch. Similarly, book papers were made from the particular grades of fibers commonly used for their manufacture, but here while rosin-sizing materials only had to be considered, study of the possible effects of the common filling materials, clay, titanium pigments, zinc pigments, and calcium carbonate or chalk, was also included.

This work showed, as have likewise extensive tests of commercial record papers, that the stability of such papers as found by accelerated aging by heating, is dependent mainly on the cellulosic purity of the fibers and the degree of acidity of the papers. Very stable papers were made from the higher grades of both rag and wood fibers, when the acidity imported by alum was not excessive of the other sizing materials used, rosin had a minor deteriorative effect. No adverse effect on stability was found for starch, and glue surface-sizing improved the stability of the less-stable papers. None of the fillers used for the book papers affected their stability, and that of the less-stable papers was appreciably improved by calcium carbonate. A report of the manufacture of the book papers is in the course of preparation. To round out other information obtained, such as effect of sizing and filling materials on strength, it is planned to make printing tests of the book papers and report the results in a subsequent publication.

The information obtained in this work assists the papermaker in his choice of raw materials and in making the best use of them, and adds to the information needed for adequate classification and specification of papers for the various classes of records.

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BRITISH COLUMBIA PULP & PAPER COMPANY LIMITED

Sales Office:

Bank of Nova Scotia Building Vancouver, B. C., Canada

Manufacturers to Buyers' Specifications of High Grade

BLEACHED SULPHITE PULPS

for Rayon, Cellophane, and Specialties, and for all Sulphite Papers

Capacity 100,000 tons per annum

OPERATING MILLS AT

PORT ALICE, B. C. WOODFIBRE, B. C.

Cable Address -- "SULFIBRE"

Paper Milk Bottles Making Steady Progress

Gold Star Creameries up to approximately 6,000 units per day in eight month's time

• After more than a quarter century of one of the most intensive and courageous uphill fights in America's history of industry, the paper milk package has arrived, according to Phil Huber, President of the Ex-Cell-O Corporation, manufacturers of the Pure-Pak milk packaging machine.

850,000 Daily Sales in New York

• "The paper milk bottle," states Mr. Huber, "has at last won acceptance on every important front-the milk plants, the retail stores, the public, and health authorities. In New York City, for example, each day 850,000 quarts are sold at retail — about one-third of the total 2,500,000 quarts — or smaller quantities of milk or cream. Our machines have been packaging milk for stores in New York City for three years. Sales have steadily increased to a point where some of the dairies are forced to keep their Pure-Pak packaging machines going full capacity. In Detroit, the C. F Smith chain of 581 stores this April reported an increase of 185% in their milk sales since Pure-Pak paper containers replaced glass bottles. In dozens of Pure-Pak installations in the greatest cities of the United States, each goes through the same formula — approval by health authorities; acceptance by the public; saving of time and labor by dairies and stores. The public, always heartily in favor of the light-weight, single-service container has at last conquered its superstition that paper "tastes" the milk-actually exhaustive tests have proved time and time again that the paraffine-protected paper containers do not alter the natural taste of milk or other contents. The natural flavor is pre-

Gold Star Making Progress

• After fighting through political difficulties which were outlined in the February 1938 issue of this journal, the Gold Star Creameries, Incorporated of Everett, Washington,

finally won permission to sell milk and cream in Seattle in paper pack-

Starting from scratch around the middle of February Gold Star has steadily developed business in Everett, Seattle and adjacent territory for its milk products put up in the sanitary Pure-Pak containers. The public has taken to the idea and now the company is selling better than 6,000 units of milk, cream, buttermilk and cottage cheese daily.

Importance to Paper Industry

• "It is obvious," Mr. Huber says. "that the fast-growing use of paper containers for milk (also cream, sour cream, chocolate milk, orangeade, cottage cheese and other dairy products) will eventually consume a tremendous quantity of paper. Naturally, there will be counter propaganda by opposing forces. But when you consider that Mr. and Mrs. Public can now get pure milk in a sterile package that will keep as long as in glass; that is thrown away when used; that never breaks; that never needs to be washed; that enters no home but theirs-all this at no extra cost-there can be only one outcome, and it's a pleasant prospect for the paper industry!"

Canada Looks to India As a Pulp Market

 Canadian woodpulp manufacturers are being advised to pay more attention to the East Indian market, where Scandinavian countries have gained a foothold in recent years.

in recent years.

With the Chinese and Japanese demand virtually stagnant at present, Pacific coast mills are showing some interest in the possibilities of doing business with India.

India is a regular importer of woodpulp, chiefly for use in the country's paper industry. Imports during the past six years have been between 11,000 and 20,000 tons annually.

"Demand for woodpulp," declares Paul Sykes, Canadian trade commissioner in Calcutta, "is based almost entirely on the demand for the paper manufacturing industry to materials to blend with pulp made locally from grass and bamboo, and it is only for the manufacture of some types of paper that foreign wood pulp is required.

"The principal types in demand are bleached and easy-bleaching sulphite, the latter in larger quantities than the former," advises Mr. Sykes. "Sulphate pulp is seldom purchased by the Indian paper mills.

"Woodpulp is usually purchased in London, contracts being concluded on a basis of specifications and prices or following analysis and testing of samples at the mills in India."

Barber Makes Visit to Ocean Falls

• Wm. R. Barber, recently appointed technical director for the Crown Zellerbach Corporation, returned to the Camas plant August 22 after a trip of two weeks to Ocean Falls, B. C., where he visited the mill and looked into technical problems of the plant. While there he did a bit of fishing on the side.

Another visitor at Ocean Falls recently was L. D. McGlothlin, superintendent of the kraft mill at Camas. He spent three weeks at the plant, during the period that E. Walloe, Ocean Falls kraft superintendent, was on a trip east with his family. Mr. McGlothlin inspected the new Thomlinson furnace installation while at the plant.

Bankus and Brazeau Attend Green Bay Meeting

• Albert Bankus, vice-president of the Crown Zellerbach Corporation and G. S. Brazeau, manager of the Everett mill, Pulp Division, Weyerhaeuser Timber Company, were the Pacific Coast industry's representatives at the Fall meeting of TAPPI held September 8th to 10th in Green Bay, Wisconsin.

in Green Bay, Wisconsin.

Both are members of the executive committee of the Technical Association of the Pulp & Paper Industry, known as TAPPI

Photographs of Weyerhaeuser Mill Win Paris Award

At the recent Paris International Architectural Exhibition photographs of the Everett mill of the Pulp Division, Weyerhaeuser Timber Company were awarded a diploma of honor.

The award, one of nineteen made to American exhibits, was for merit in industrial design combining beauty with functional utility.

The Weyerhaeuser mill was designed by consulting engineer Otto C. Schoenwerk of Coral Gables, Florida. The photographs which were entered in the industrial and commercial section of the exhibit by the American Institute of Architects were taken by Everett Murray of the Juleen Studio in Everett.

Pabcoweld Roofing – As New as Tomorrow

A New Field of Quick Profits for the Building Material Dealer

by J. W. CORCORAN, Northern District Manager The Pabco-Paraffine Companies, Inc.

TIMELY! Streamlined for modern use! Revolutionary in character — Pabco Paraffine again takes the lead.

These are headlines that fittingly describe Pabcoweld, a new system or roof application.

The Pabcoweld system is modern. It is supported by a perfected "Method of Forming a Roof" patented by Dozier Finley for the Company, June 9, 1935—No. 1,541,130.

"An object of the invention is to provide a less expensive method of forming roofs with prepared roofing than is possible under the usual practice . . . when the process is employed . . . since the plastic binder sets slowly, it may be applied to the surface of the laid roofing and exposed to the air for a considerable time before it loses its binding properties, so that one man may spread the binder and subsequently apply the next ply of roofing," The United States Patent Office says.

While this patent was granted in 1925, it was developed and finally perfected in 1935. After a long series of experiments, The Pabco-Paraffine Companies, Inc., a nounces the development of a new method of laying roofing and a resultant roof which differs in many respects from older types of built-up bituminous roofs.

This new roofing system makes use of new materials throughout. The appearance of the final roof is radically different from the roof coverings used in the past. The performance of the roof in service differs from that of older roofing types—the temperature in the building beneath the roofing is lower on hot sunny days; the roof itself can be made to serve as a source of light to the building interior where sawtooth construction is employed.

Present Day Methods

• From the beginning of the "felt and gravel roofing" industry, the method of laying a "built-up" roof has consisted in cementing together

sheets of bituminous saturated felt with heated bitumen; over the final, or top, sheet a layer of the melted bitumen is applied and gravel is sprinkled into it. The bitumen may be coal tar pitch or asphalt; these cannot be mixed nor can tar pitch be used with asphalt saturated felt it must be used with tar felt, likewise, asphalt must be used with asphalt saturated felt. Felt and gravel roofs are usually built up with four or five layers of felt-occasionally three layers and as an extreme, seven layers of felt. Including the top layer of bitumen and the gravel, the total weight is normally five hundred pounds per one hundred

The use of hot bitumen is always attended with some hazard. Buckets of this melted material are hoisted to the roof by a rope passing over a pulley hung from an improvised scaffold. Not infrequently workmen have been seriously burned.

There are no instruments used to indicate or control the temperature



J. W. CORCORAN Northern District Manager Pabco-Paraffine Companies, Inc.

of the hot bitumen, there is no way to tell whether the proper amount of bitumen is applied between the several layers of the felt and over the topmost sheet. All this depends on the experience and skill of the workmen and their foreman. In extreme cases, much rests on the honesty of the roofers, for a sheet of felt may be omitted or a mopping skimped or skipped - these are things which do not show in the finished roof. To check such shortcomings it has long been customary to make a "cut out test"-a square yard specimen is cut out of the laid roof by the owner or his representative. Careful examination of this specimen discloses how well the roof laying process has been carried ro of

The economic side of this matter shows other weaknesses of the system of building up roofs with hot bitumen. A roofing "crew" usually consists of a foreman, a kettleman and two men to cut and lay the felt sheets and to mop the hot bitumen on the sheets. The foreman also works on these latter tasks. Time is lost in the many preparations involved. The kettle must be heated. Barrels of bitumen must be broken up and pieces of bitumen put in the kettle. The kettleman takes no part in laying the roof—he merely pre-pares and handles materials. For a very ordinary size roof as much as ten tons of material may be hoisted by hand to the top of the building.

The Pabcoweld Idea

• The basic thought which led to the development of the Pabcoweld Roofs was that the present system of laying built-up roofs is uneconomical, particularly where smaller roof areas are concerned. The cost of preparation and the distribution of labor places a serious handicap on the construction of such small built-up roofs.

A solution for this problem appeared to be the elimination of the Y

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kettle as a roofing accessory. In place of the solid bitumen which thus is omitted, a bituminous composition is applied cold. This one item in the Pabcoweld process at once makes it possible to keep the roofers at the task of laying the roofing instead of spending so much of their time in preparing the roofing materials for laying, or in hoisting materials to the roof which, after all, is a work for laborers, not for skilled workmen.

The use of the cold composition was made the subject of U. S. Patent No. 1,541,130 which covers the primary principle of laying the Pabcoweld roof. Experimental roofs have been laid and the construction observed over a period of time. However, no commercial applications of this roof construction were attempted until widespread interest was aroused in all movements to lower building construction costs.

Surfacing Pabcoweld roofs with Coolite was made a part of the Pabcoweld system. Coolite is a highly durable asphalt base aluminum finish for asphaltic roofings. Coolite has been developed over a period of twelve or fourteen years. The first disclosure of the principle involved was set forth in U. S. Patent No. 1,568,215. During the last five years many thousand squares of various aluminum finished granule surfaced roofings have been produced by The Pabco-Paraffine Companies and Coolite protected roofs by the hundreds have been applied and coated by Pabco applicators. Definite improvements have been noted in the lowering of temperatures after Coolite has been applied to roofs. Lighting is improved materially in those cases where the buildings can receive light from its own roof areas through sawtooth roof construction.

• With the Pabcoweld system of laying roofing there has been developed a flashing material and a flashing composition—these two products take care of the very difficult task of sealing the junction between the roof deck and the parapet walls of the building, skylight curbs, etc.

First and foremost in the group of the new materials used in Pabcoweld construction is the new roofing sheet itself. This is a specially built roofing sheet. It is wider than the normal roofing so that the exposed and unexposed widths of the sheet as laid will be expressed in even numbers instead of in inches and fractions. The

finish on the surface is a special black mineral. The sheet has four reference lines marked on it to indicate the width to be exposed in lay-The first two of these logitudiing. The first two of these logitudi-nal lines are 12 inches from the edges, the next two are 18 inches from the edges. Thus the sheet is reversible—when nearing the ridge, sheets may be split and the half which is cut away may be used at other places near the ridge. Since the reference marks are equally spaced from the two edges it is possible to lay either edge as the exposed edge.

Another new material in this group is the Pabcoweld Cement. It is specially designed for cold cementing purposes. The setting time and final drying are so regulated that ample time is given for laying down the roofing sheets while the cement is still "tacky". Yet the drying time is not retarded so much that the sheets of Pabcoweld are bonded too slowly.

The Flashing Compound is of thicker consistency than the cement and contains asbestos fibre. It is applied by a trowel or stiff dauber. It is weatherproof, so that a coat of it over the flashing will resist exposure around parapets and other breaks in the roof even if it has not been properly coated with Coolite. The Pabcoweld Flashing Strips

4 inches wide. They are used to reinforce the Flashing Compound at the top of the turned up flashing and at all corners of skylight and hatch curbs. The Pabcoweld strips are used also around metal vent pipes and at all outlets.

are flexible saturated cloth strips

How Pabcoweld Roofs Are Laid

Pabcoweld Roofs are laid either as three layer, or as two layer construction. In the three layer method each sheet is exposed 12 inches to the weather—this means that the remaining 26-inch width of sheet lies underneath superlying roofing sheets—i. e. under the exposed 12-inch portions of the sheets above; there is a 2-inch lap which actually forms a partial four-layer section—but this is only an overlap for security in case some one or more sheets may be unavoidably exposed a little more than 12 inches.

In laying a roofing of the threelayer type, two eave strips of graduated width are cut from a Pabcoweld sheet. These are secured in place by nailing and by application of cement on the areas where one overlaps the other. Then the first full width Pabcoweld sheet is laid. It is cemented to the uppermost of the eave strips and is held by nails along its upper edge. Following this, successive full width strips are laid,

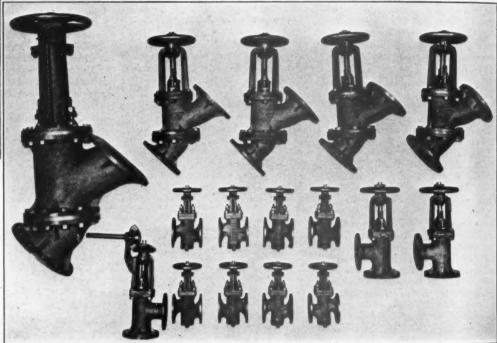


PABCOWELD CEMENT being spread on the back of the Pabcoweld roofing, to be evenly rolled back to position when the cement is on.



Pride in Craftsmanship

... is your assurance of that extra value found in Vaughan Valves...



F YOU visit the Vaughan plant, you will find three important requisites which are vitally necessary to bring out a quality product:

Men... with years of experience in casting and working metals... practical men who strive for lifetime performance as well as perfection.

Machines ... which are constantly modernized with the times ... designed to give uniform precision on any job.

Pride ... which motivates every Vaughan artisan to give his best to his particular job.

Vaughan valves are doing service in many Northwest mills. We would hesitate to claim so much for them were it not for the fact that they have proved themselves well worthy of the intense PRIDE we take in their performance.

May we consult with you about your valve needs? There will be no obligation.



VAUGHAN MOTOR COMPANY «Ph. EA 1108 Made 835 S. E. MAIN «PORTLAND, OREGON

each one being coated with the Pabcoweld Cement over its entire area except the 12-inch width to be exposed to the weather. The reference mark 12 inches from the edge serves as an indicator for the spreading limit of the cement.

Flashings against brick or concrete parapet walls, against building walls, chimneys, vent pipes and the like are formed by the use of the flashing strip which reinforces the Pabcoweld Flashing Compound. The resultant flashing is flexible, allowing for building movements and vibration. It does not involve cutting a reglet into the masonry parapet wall. Thus it conforms to the requirements of approved earthquake resistant construction.

In laying a roof with 18-inch exposure—the double thickness roof—the same procedure is followed except that only one eave strip is used and the individual sheets are coated with the cement only to the second marked line, 18 inches from the edge of the sheet, and not to the first or 12-inch reference line. The successive sheets overlap the sheets below them for a width of 20 inches. This provides a 2-inch overlap as a security against the occasional failure to lay the sheets precisely to the 18-inch line.

The Coolite Surfacing

• When the laying of a Pabcoweld roof is completed the surface is black, due to the mineral finish; if it is a two-layer construction 12-inch refenrence lines appear on the exposed parts of the sheets. These lines are about ½ inch wide and are inscribed in the process of manufacture with a special Coolite solution. If the roof has the three-layer construction, of course these lines do not appear. Flashings are dense black, due to the black flashing compound used with the flashing strips.

Coolite is sprayed on the roof surface. At once the entire roof, inclusive of the flashings, becomes brilliantly metallic. Coolite is a material with a unique composition. The vehicle is bituminous in character-this is why it amalgamates with bituminous roofing. The great majority of aluminum paints consist of a varnish gum plasticized by a vegetable drying oil, this being thinned with mineral spirits. Aluminum powder or paste is added to this vehicle-when applied over bituminous roofing there is imperfect amalgamation between the non- bituminous vehicle and the bituminous



SHOWING the Pabcoweld sheets stepped up the incline and and laps clearly defined.

roofing and checking or "alligatoring" soon sets in, destroying the efficacy of the metallized surface and damaging the roofing. But Coolite, having a bituminous vehicle, does not check or "alligator."



PABCOWELD ROOF being bonded with three section 150 pound roller, rolling body of each sheet, then the seams, making all sheets and seams permanently tight.

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Bingham EVEN-FLOW PUMPS cannot become AIRBOUND!

Bingham Even-Flow pumps are designed especially for Pulp and Paper Mills. These remarkable pumps efficiently handle white water or stock containing large quantities of entrained air without reduction in capacity or interruption in service.

• Bingham Even-Flow pumps discharge white water or stock with an even, non-pulsating flow regardless of whether they are pumping full capacity or a fraction of their capacity.

• Think what it would mean in your mill operation to have screen transfer pumps deliver pulp from one line of screens to another with an even, non-pul-

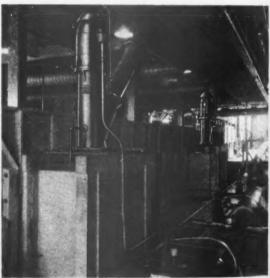
sating flow.

Screen room production can be increased through the installation of these pumps!

Latest developments in hydraulics are incorporated in Bingham Even-Flow pumps to effect savings in horse power consumption. Vertical design permits operation in small collecting pumps with resultant savings in construction costs and reduced floor space requirements.

Bingham engineering assures sturdy construction. Complete specifications for Even-Flow pumps are available in a free bulletin.

SEND FOR YOUR COPY TODAY



A battery of "Even-Flow" Pumps installed for screen transfer service.

The non-pulsating, even rate of discharge, which is a characteristic of these pumps, greatly increases flat screen production.

Bingham

705 S. E. MAIN STREET PUMP COMPANY
PORTLAND, OREGON PUMP COMPANY

Durability

• In proving tests, the practical economy of laying Pabcoweld roofs has been worked out in a wide range of territory with varying climates and with dissimilar working conditions so far as labor is concerned. Such roofs have been laid in Northern and Southern California, in Oregon and in Arizona. The other phase of this subject is the important one of durability.

The most simple way to answer this question is the old one, "Let's examine the record." The original Pabcoweld test roof was in perfect condition at the end of seven years, when the building on which it was applied was demolished. Others, at later dates, have had similar logevity records. The basic roofing itself has records of extremely long service particularly when the surface is protected by a proper coating. Coolite, more than any other roof coating so far discovered, has the effectiveness to protect certain underlying materials to which it is applied. Records of unimpaired usefulness up to and beyond ten years have been established. Under very bad dirt conditions even, the Coolite coating has been in good condition at the end of fourteen years.

Recoating with Coolite at five or six-year periods is a very easily carried out maintenance program-it is much simpler and far less expensive than the recommended practice of repainting a house at similar intervals-in the case of the house after a six-year period, usually two coats of substantial thickness are required. With a Coolite roof a single, comparatively light spray can be applied at the end of the stated period. Aluminum is essentially clean and, given half a chance, will go far toward maintaining it-self. In maintaining itself the aluminum maintains the roofing beneath it-and that roofing, in this case, is Pabcoweld.

Another important feature of these roofs, also connected with the subject of durability, arises out of their insulating values. For about two decades it has been the practice to improve building insulation by laying bituminous roofs over one or two inches of cork board or fibre insulating board. The theory was that the heat could not strike through the thickness of insulating material. However, the heat actually was absorbed; it is accumulated in the top portion of the insulating board and in the roofing itself. The result was that the roofing was burned out after a few years' service. Pabcolweld with the Coolite surface reverses the theory of the use of insulating boards. All the heat absorbed by the Pabcoweld roof is passed through to the underside, and to the space below. But Coolite prevents absorption of all but a small fraction of the solar heat. The result is that coolness is obtained without shortening the life of the roofing.

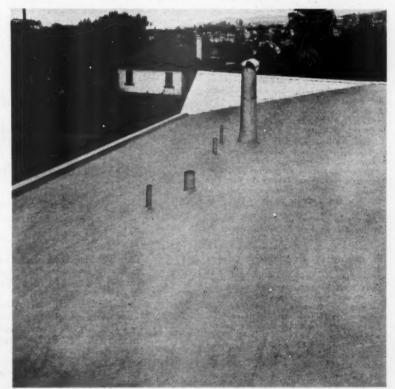
Saving in Weight

• Pabcoweld roofs are lighter than the roofs of the past decades. It was stated earlier in this article that a built-up felt and gravel roof covering on a building of moderate size might weigh as much as ten tons. In the design of some types of buildings this means very littlethe roof deck is built to carry its own dead weight, plus a dead weight for the roof covering, which we shall say is five pounds per square foot, and in addition there is probably twenty pounds figured for wind load and "live load" or a total weight of twenty-five pounds per square foot superimposed on the roof deck. A saving of four pounds per square foot will reduce this to twenty-one ponds. In many cases this will not permit the architect to decrease the depth of

his rafters from eight inches to six inches for, it must be remembered, a six-inch rafter will support only about one-half as much weight as an eight-inch rafter. But there will be many cases where such a reduction in rafter size becomes possible and with it there can be other savings in structural weight which will have an influence on design reaching down well below the top story. This is particularly true of long roof spans in such buildings as theatres, garages, stores, packing houses and the like. In this way Pabcoweld roofs effect critical savings in weight in comparison with the older type of roof—the asphalt and gravel type.

The Cleaner and the Safer Way

● In developing the Pabcoweld system the primary plan was the elimination of the unnecessary features which have always formed a part of the process of putting a roof covering on a building. But other features grew out of the original plan. Doing away with the roofer's kettle does away with soot, ashes, smoke and odor—it makes the work cleaner. Asphalt no longer is slopped on the curb, sidewalk and, as at times in the past, on the side of



SECTION OF COMPLETED PABCOWELD ROOF with heat and light reflecting Pabco Coolite applied over the entire surface + + + Efficiency and pleasing appearance combined.

the building. All materials come to the site of the work in containers, and the containers are sealed and properly labeled. Pabcoweld roofing is supplied rolled in wrapped packages. The flashing strips are in sealed containers. The cement is in metal packages of such a size they may be taken directly up to the roof deck—far different from asphalt which must be broken by an axe into lumps and flung about by the kettlemen on the sidewalk.

Pabcoweld Flashing Compound is likewise in a convenient size metal container.

This is the modern way, conforming to the manner in which lubricating oil comes to us for our auto engines and the manner in which bread comes to us from the bakery. It is again a breaking away from the "good old days" of our grandfathers—the days when men and women could find time to set their bundles on the sidewalk and thus

free a hand to open the store door, a thing the electric eye does for us today.

J. W. CORCORAN

J. Corcoran makes his headquarters in Seattle as Northwest District Manager of Washington, Oregon, Montana and part of Idaho, for The Pabco-Paraffine Companies, Inc.

This story, the first magazine article of a number to appear in regional and national publications on the entirely new process Pabcoweld Roofing—was prepared by Mr. Corcoran.

British Columbia Newsprint Situation

● The market situation in the United States continues to be the only dependable guide for British Columbia newsprint manufacturers in plotting their future course, and until improvement becomes more marked there semes to be little prospect of a return to normal production conditions.

Meanwhile mill operators are deriving some hope from reports that production and shipments will be in direct proportion to consumption within a few weeks.

There is reason to believe that the industry's returns for the last three or four months of 1938 will be in sharp contrast to those that have been issued so far this year.

Newsprint executives say that it will be impossible to obtain a clear picture of the situation until the beginning of next year when conditions should be normal again if demand in the United States, the chief market, continues to maintain its present position.

Since the beginning of this year both production and shipments from the Canadian mills have been seriously affected by the accumulation of surplus stocks by American publishers during the last few months of 1937 in anticipation of the price rise that became effective last Janzara.

At the beginning of 1938 the American publishers had indicated stocks of 766,758 tons. These were between 380,000 and 400,000 tons greater than actually required by the publishers to meet requirements.

For the past seven months the publishers have been drawing on these surplus stocks, and the result has been a distortion of production and shipments by Canadian mills which supply roughly 60 per cent of the total American newsprint needs.

Not only have Canadian sales to the United States declined due to the heavy inventories piled up a year ago; they have suffered by a decline in actual consumption due to the falling off in advertising. This decline has averaged 12 per cent to date.

The situation has been further complicated by the fact that Canadian mills in an effort to hold up production and maintain employment have produced at a rate unwarranted by current market demand. On the Pacific coast, the British Coulmbia mills have drastically curtailed production by complete shutdowns periodically of about two weeks' duration and by maintenance of four and fiveday weeks.

According to statistics of the industry, it will be only a short time before publishers will have used up their reserves, and start to draw on their regular supply. When that time comes, probably in October, increased orders for newsprint seem inevitable. To the end of June the American publishers drew upon their reserves to the extent of around 300,000 tons or at an average monthly rate of 50,000 tons. Therefore the publishers could afford to draw down in August and September another 100,000 tons without affecting their regular reserve supply of paper. After that, how-

ever, these draw-downs would have to be replaced by newly ordered paper. The expectation in the industry, therefore, is that the publishers will be buying 50,000 tons more per month so long as the present consumption rate continues.

Paper Mill in Java

Preliminary plans have been made by the International Handelsvereeniging Rotterdam, one of the largest trade companies in the Netherlands Indies, for the construction of a paper mill in Java. No further information concerning the probable scope of the mill has been made public, it being merely stated that the plant will be located at Letjes, near Surabaya, East Java and that construction will not begin before the beginning of 1939. (Office of the American Trade Commissioner, Batavia.)

TAPPI to Hold 1940 Fall Meeting in Seattle

Executive Committee Accepts Invitation of Pacific Section at Meeting in Green Bay

The Technical Association of the Pulp & Paper Industry has accepted the invitation of the Pacific Section to hold the 1940 Fall meeting in Seattle.

The invitation was personally extended at the Green Bay meeting, September 8th to 10th, by the two Pacific Coast members of the Executive Committee of TAPPI, Albert Bankus and G. S. Brazeau.

Tentative plans call for a four day meeting to be held either the third or fourth week in August, 1940.

TAPPI held its 1934 Fall meeting in Portland, Oregon.

Natwick Brings Back Fish Pictures

• A. G. "Buff" Natwick, assistant manager of the Camas mill of the Crown Zellerbach Corporation, is back at the Zellerbach Corporation, is back at the mill after spending two weeks in the Wallowa Lake country of eastern Oregon. With him on the trip was Roy Carey of the National Aniline & Chemical Co., Fred Alsop of Van Waters & Rogers, and Carroll Francis, Portland produce man.

The group packed in eight miles off the road and went after the fish. Buff claims they got some fish, and is still car-rying photographs around to prove his

McGregor Joins Superintendents Association

• George H. McGregor, superintendent of the Longview mill Pulp Division, Weyerhaeuser Timber Company, recently became a member of the American Pulp & Paper Mill Superintendents Association. Mr. McGregor is also a member of TAPPI and served as chairman of the Pacific Section for the 1937-1938 term. He is now a member of the executive committee.

Harry Richmond **Makes Extended Trip**

• Harry H. Richmond, chief engineer of the Electric Steel Foundry Company of Portland, Oregon, left Portland July 16th accompanied by Mrs. Richmond on a combined business and pleasure trip which took them as far east as Beaupre,

There they visited with Mr. and Mrs. Dan Dupuis and the two couples motored

Dan Dupuis and the two couples motored to a number of scenic spots near Beaupre. Mr. Dupuis took the accompanying photograph of Mr. Richmond.

The Richmonds visited Chicago, Appleton, Duluth, Toronto and Montreal enroute east and on the return trip took in Winnipeg, Lake Louise, Banff, Vancouver and Victoria, arriving back home on August 22nd.

on August 22nd.

Mr. Dupuis was associated with the Crown Willamette Paper Company for a crown Willamette Paper Company for a number of years as an operating ex-ecutive. At the time he left the Pacific Coast in 1937 he was manager of the corporation's Lebanon, Oregon, mill. He is now manager of the Ste. Anne Paper Company, Limited, of Beaupre, Quebec, producers of newsprint.

C. E. Kinne Heads Bagley & Sewall

• Clarence E. Kinne, a vice-president since 1927 of the Bagley & Sewall Company of Watertown, New York, builders of paper making equipment, was re-

of paper making equipment, was recently elected president to succeed Charles W. Valentine. Mr. Valentine resigned because of poor health.

Mr. Kinne, who is well known to the industry on the West Coast, has been associated with Bagley & Sewall since 1893, and has been vice-president since 1927 with the exception of about a year, 1933-1934 when he retired and took things easy acting only in a consulting capacity with the company.

Edward S. Lansing remains as vice-president. Robert T. Petrie is Pacific Coast representative of the Bagley & Sewall Company and maintains his home in Portland, Oregon.

in Portland, Oregon.

Frank Neffew Dies at Shelton

 Frank A. Neffew, 71-year-old chair-man of the Pioneer Employes Club of Rayonier Incorporated, Shelton Division, died August 23rd after a prolonged ill-

Mr. Neffew had served as chairman of the Pioneers Club since its organization several years ago and was one of the chief organizers at the beginning.

Cellulose Sales Company Organized to Handle Swedish Pulp

• The Cellulose Sales Company, Incor-● The Cellulose Sales Company, Incorporated, 250 Park Avenue, has just been organized to represent The Swedish Pulp Company of Stockholm, Sweden, beginning September 1st, in the United

According to the official announcements made by The Swedish Pulp Company, "It has long been the desire of The Swedish Pulp Company to conduct the major part of our business through one channel in the United States, believing that by so doing we could best serve the interests of our American customers." tomers.

Mr. N. R. Johaneson, president of Johaneson, Wales & Sparre, Inc., is the president of the Cellulose Sales Company. The other officers include: K. J. Lundahl, Vice-President. O. A. Wales, Vice-President. P. G. Sparre, Vice-President and

G. M. Spencer, Secretary.
According to Mr. Johaneson, the entire staff of Johaneson, Wales & Sparre,

Inc. will join the new company.

The Swedish Pulp Company manufactures annually approximately 350,000 tons of bleached and unbleached sulphite, 375,000 tons of kraft pulp and 200,000 tons of groundwood. The timelocal company is the standard pulphing and 200,000 tons of groundwood. berland owned outright by The Swedish Pulp Company and affiliated companies comprises more than 5½ million acres. The president of The Swedish Pulp Company is Mr. Torsten Hernod and

the vice-president and director of sales

is Mr. Einar Flygt, both of whom are well known among the pulp and paper manufacturers in the United States because of their frequent visits to this

Vic Gault Takes Rest

· Vic Gault, genial personnel manager at Camas for the Crown Zellerbach Corporation, has been missing from his usual haunts for several weeks. Reason: A vacation trip that took him to San Francisco and on south as far as Los

To Make Bagasse Sulphite In Formosa

• The inaugural meeting of the Shin Nippon Sugar Industry Company was held on April 21, 1938. The new company has decided to locate its plant at Taishikyu, Tainan Province in Taiwan (Formosa). Work is now being rushed to complete the plant by November 1938. (Formosa). Work is now being rushed to complete the plant by November 1938. The company will manufacture pulp from bagasse by the calcium sulphite process. Initial output is placed at 30,000 metric tons per year. (Office of the American Commercial Attache, Tokyo.)

Production of Newsprint In China Postponed

• The year 1937 did not witness the commencement of the domestic produccommencement of the domestic production of newsprint paper in China as was anticipated during the latter months of 1936. Although construction work on the Kwantung Paper Mill near Canton was finished early in the year, its opening has been indefinitely postponed, owing to the general abnormal conditions now obtaining. Further efforts to establish a mill at Wenchow have also been postponed until such time as more been postponed until such time as more favorable economic conditions exist. This project, as has been previously reported, was to have an output capacity of 35 tons of newsprint per day on the basis of 350 working days per year. (Office of the American Commercial Attache,

Pulp Imports Down 38.8% in Seven Months

 Imports of chemical wood pulp of all classes for the first seven months of 1938 aggregated 769,080 short tons, a decrease of 488,777 short tons from the 1,257,857 short tons imported in the same 1937 period or a decline of 38.8 per cent.

Groundwood imports were 87,314 short tons in the first seven months of this year against 134,645 short tons in the same period of 1937, a decline of 47,331 short tons or 35 per cent.

Wood pulp imports during July, the last month reported to date, amounted to 121,919 short tons of chemical pulp valued at \$5,532,125. This compares with 130,181 short tons valued at \$5,736,704 imported in June of this year, and 202,136 short tons valued at \$8,846,698 imported in July, 1937.

Chemical pulp imports in July . were smaller than those of June and January, but larger than the imports during February, March,

April and May.

Quality SULPHITE PULP

PUGET SOUND PULP&TIMBER COMPANY BELLINGHAM, WASH.

DOMESTIC & EXPORT

Trade Talk

of Those Who Sell Paper in the Western States

Andrew Cochran Returns to Coast

As Paper Mill Representative With Offices in San Francisco

• Andrew H. Cochran, since 1933 with The Mead Sales Company, San Francisco and Chicago sales offices, returned to the Pacific Coast about September 1st. He has opened an office in San Francisco and will represent a group of mills, including The Mead Sales Company, Dill & Collins Inc., Wheelwright Papers Inc., The Marvellum and Beveridge-Marvellum Companies of Holyoke, Mass.; The Falulah Paper Company of Fitchburg, Mass.; the Pejebscot Paper Company of Brunswick, Maine, and The Curtis Paper Company of Newark, Delaware.

Mr. Cochran is well known among the paper trade of the Pacific Coast, having been identified with it in a sales capacity for both mills and merchants since 1923. Announcement of the location of the office in San Francisco was to be made early

in September.

Columbia Paper Products **Buys Portland Property**

 The Columbia Paper Products Com-pany of Portland, Oregon, paper box and specialty manufacturers recently and specialty manufacturers recently purchased three lots improved with two buildings on the south side of North-east Holladay street, between Twenty-fifth and Twenty-sixth avenues.

Ferris Earns Vacation

• Ernest R. Ferris, head of the printing paper department at Zellerbach Paper Company left for his first vacation in two years during mid-September.

Huelat Rests In Oregon

• Walter W. Huelat, manager of Blake, Moffit & Towne, was able to enjoy a va-cation this year in his old haunts, out of doors in Oregon.

Macormack Gone Seven Weeks

• T. C. Macormack is away from his office at San Francisco on a seven weeks trip which will include visits to the three Massachusetts mills he represents. He is coast sales representative for Strathmore Paper Co., West Springfield, Rising Paper Co., West Springrieid, Rising Paper Co., Housatonic, Mass. and Old Colony Envelope Co., Westfield, Mass. At West Springfield he will attend the annual meeting of Strathmore salesmen.

Paper Mill Men's Club **Holds Meeting**

• The Paper Mill Men's Club of Southern California was scheduled to hold its ern California was scheduled to hold its September meeting on the 16th at the California Country Club, where the annual Hi-Jinks will take place in October. Golf games were on the program for the afternoon and a preview of some of the acts to be presented at the Hi-Jinks in the evening following dinner. the evening following dinner.

Levison Has An Overhaul

 Ben Levison, San Francisco paper mill representative, was laid up this summer with an appendicitis operation and some work on his nose. Ben says they fixed him up with spare parts, although his son wanted to turn him in on a new model.

Zellerbach Reserves Space at Exposition

· Zellerbach Paper Company is the first paper firm to take reservations for an exhibit at the 1939 Golden Gate International Exposition on Treasure Island, San Francisco.

Doherty Honored

 L. J. Doherty, Sacramento manager of Zellerbach Paper Company, was guest of honor at a dinner dance cele-brating the 10th anniversary of his taking over his post.

Claude Zamloch, credit manager, Oak-land division, Zellerbach Paper Com-pany, celebrated his 33rd year with the company on August 3.

Sheldon Promoted By Northwest Paper

 C. P. Sheldon, for five years district sales manager at San Francisco, for the Northwest Paper Co., has been promoted to the post of fine paper sales man-ager of the firm's Chicago district and moved from San Francisco in September

to take up his new work.
Succeeding him at San Francisco is
Orlo F. Brower who has been in the sales Orlo P. Brower who has been in the sales service department of the company's mill at Cloquet, Minn. Mr. Brower has wide acquaintanceship among the printing fraternity because of his activity as supervisor of the department of paper of the International Association of Printing House craftsmen.

Going Fishing

"Dear 'J. D.'-I'm going fishing!

"Dear 'J. D.'—I'm going fishing! Good luck to you. I. Zellerbach!"
This note was shown in a clever cartoon in the Zellerbach house organ, "Sales Ahead," depicting the desk and chair of the president of Crown Zellerbach Corporation. This post recently was taken over by J. D. Zellerbach who succeeded his father, I. Zellerbach, who became chairman of the executive committee.

"As simply as that . . . with no fuss or fumbling . . . the big boss took leave," says "Sales Ahead."

"Fifty years is long enough," the headline read. Last spring I. Zellerbach celebrated the passing of his half-century mark in the paper business.

The cartoon and text was the work of Mrs. Glory Palm, assistant to V. E. Hecht, vice-president in charge of pro-

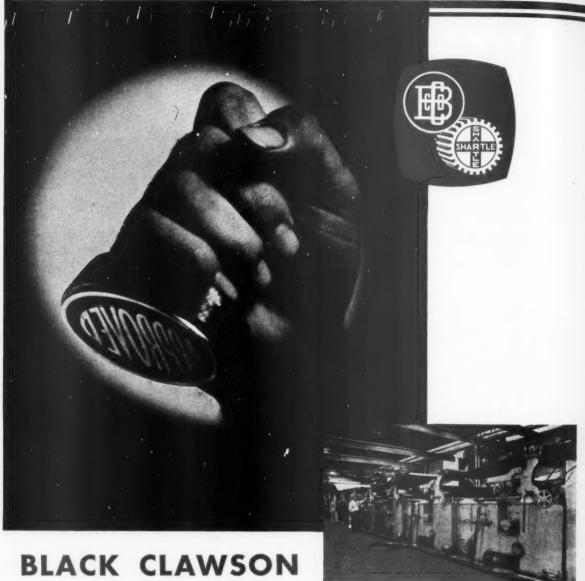
Mrs. Glory Palm, assistant to V. E. Hecht, vice-president in charge of promotion of the Zellerbach Paper Co.

Paper Fishermen

Three ardent Izaak Waltons among Three ardent Izaak Waltons among the Southern California paper men are John Kehres of Zellerbach Paper Company, George Ward of Ward, Davis & Dunn, and Arthur J. Nelson of Ingram Paper Company. On returning from their summer's vacations wading up various California streams, a contest entire that the past agreety of the past pages of the past pages of the past pages of the pages of sued as to who caught the most, largest and best. No prize was awarded nor was first place winner announced.

Harold Zellerbach **To Attend Chicago Meeting**

 Harold L. Zellerbach, San Francisco, president of the Zellerbach Paper Co., will be a delegate to the National Paper Trade Association fall convention at Chicago September 19-21. Mr. Zellerbach is a former president of the N. P.



SHARTLE BROS.

APPROVED... Several score vats in 22 mills in less than 5 years ... that is the record of the new Black-Clawson vat. From every mill comes the report of greater formation control, higher speeds, smoother finishes, and savings on felting. • These results are the product of scientific designing and sound construction. For the same reasons, other Black-Clawson and Shartle Brothers paper mill machinery also have their definite advantages—also lead to substantial savings.

B - C WET-END

Used with great success to

Used with great success to form a wide variety of stocks. Highly efficient . . . pays for itself. Write for details.

The Black-Clawson Co. and Shartle Brothers Machine Co.

McKnight Has Assistant

• A. J. McKnight, San Francisco representative of the Hawley Pulp & Paper Co., has a new assistant. He is H. R. Alexander, recently with the Pacific Manifolding Book Co., Emeryville.

Murray Rests Up

• Vacationing at his summer home at Long Beach, Washington, in August was J. L. Murray, San Francisco, sales manager of Everett Pulp & Paper Co.

ager of Everett Pulp & Paper Co.
On vacation at the same time from
Everett's San Francisco office was Miss
Helen Herron, secretary.

Holland Rests From Selling

 Philo Holland, manager of Zellerbach Paper Company, Los Angeles, spent his vacation at Lake Tahoe this year.

W. J. Gray Vacations

• W. J. Gray, San Francisco, The Paterson Parchment Paper Co., spent a month's vacation fishing in Oregon and resting at Lake Tahoe. He returned to his desk September 6.

McKenzie Returning From Orient in October

H. J. McKenzie, manager of Export port Sales Company, representing Powell River Company and Pacific Mills, Ltd., in the Oriental market, is expected to return to his office in Vancouver, B. C., early in October.

Mr. McKenzie has been making a

Mr. McKenzie has been making a general survey of marketing conditions in the Far East with a view to ascertaining whether west coast mills have much chance of selling in China and Japan during the next few months.

July Newsprint Production

Production in Canada during July 1938 amounted to 202,546 tons and shipments to 205,490 tons according to the News Print Service Bureau. Production in the United States was 63,278 tons and shipments 69,718 tons, making a total United States and Canadian newsprint production of 265,824 tons and shipments of 275,208 tons. During July, 20,972 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 286,796 tons. Total production in July 1037, www.424,323.

duction in July, 1937, was 424,333 tons.

The Canadian mills produced 641,537 tons less in the first seven months of 1938 than in the first seven months of 1937, which was a decrease of thirty and five tenths per cent. The output in the United States was 91,009 tons or sixteen and six tenths per cent less than in the first seven months of 1937, in Newfoundland 55,227 tons or twenty-six and five tenths per cent less, making a total decrease of 787,773 tons, or twenty-seven and five tenths per cent.

Stocks of newsprint paper at the end of July were reported at 179,282 tons for Canadian mills and 22,557 tons for United States mills, making a combined total of 201,839 tons compared with 211,223 tons on June 30, 1938.

Paper Supply Makes Snowmen During Summer

• Although making snowmen is considered the special prerogative of small boys and is confined to winter months when snow is flying, a Los Angeles paper converting firm is turning out 1000 snowmen a day with the thermometer registering its usual 90 degree August weather outside.

The Paper Supply Company at 450 Seaton Street is the snowman factory. Since pioneering the conversion of Cellophane more than ten years ago this firm has been creating and manufacturing thousands of new specialties such as Glassips, which are Cellophane soda straws, wreathes garlands, place card novelties, and all types of decorative materials.

Last year they introduced the Cello-craft tree, a table Christmas tree made of DuPont's patented Mica Crystal, a Cellophane specially treated to remove stretch and crinkled to give highlight effect. The trees are made in sizes from small table place card novelty size to twenty-four inches in height. From 95 to 180 pieces are used in making each tree of paper from eleven to fifteen sizes of stock. The trees are made in various colors and ornamented with regular Christmas tree glass balls and a star on top. At present they are manufacturing 140 trees per day.

The snowmen are made from Glassips and are composed of two balls, a large one for the body and a smaller one for the head. A Cellophane ribbon in two colors is hung around the neck for a tie with round cut pieces for buttons on the front, eyes nose and mouth the head and a conical cap with tassle for a hat. These snowmen are made similarly to an Easter rabbit manufactured by the company early this year.

• In addition to these items the firm makes hundreds of gross of decorative balls from 18 to 24 inches in size, as well as spiral garlands

Mr. C. C. Bolyard is president of the company. Mr. L. A. Otto is in charge of sales. The company employs more than 70 people. Much of the work is by hand and most of the equipment used was developed in the plant itself. Last year a tube machine was installed to make laminated tubes for their own packaging.

Chase Elected Vice-President of Plant Rubber

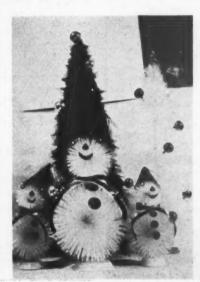
Election of Reuben H. Chase, general manager of Plant Rubber & Asbestos Works, West Coast's largest manufacturer of asbestos materials, as vice president and general manager of the firm, was announced late in August.

Plant Rubber & Asbestos Works manufacture 85% magnesia pipe and other forms of insulation. They also manufacture the most extensive and complete line of high-grade mechanical packings on the Pacific Coast.

Founded in San Francisco in 1898, Plant has enjoyed steady growth and is now the largest manufacturer of asbestos materials in the West, having sales offices in San Francisco, Los Angeles, Oakland, and Wilmington. Factories are located at Redwood City, San Francisco, and Los Angeles, their plant at Redwood City being the only Pacific Coast owned magnesia factory. Distributors are located in the principal cities of the Middle West and East, as well as throughout the Pacific Coast.

Opening of Whakatane Paper Mills Postponed

● The Whakatane Paper Mills, Limited, has decided to slow down progress on its plant, so that production will not begin before February, 1939. Previous announcements have been that operations would commence in August this year. No reason has been given for this change in plans other than it is a matter of policy. (American Consulate General, Wellington.)





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Pacific Coast Representative: WALTER S. HODGES
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Electricity Aids In Paper Cutting

• Electricity now takes the wavering out of the "straight and narrow path" of paper cutting, F. H. Gulliksen, electronic control engineer of the Westinghouse Electric & Manufacturing Company, reported recently before the summer convention of the American Institute of Electrical Engineers at Washington, D. C.

Mr. Gulliksen described his invention which utilizes a single phototube, amplifiers and a small reversible motor to follow a narrow guide line on long rolls of paper, enabling them to be wound evenly from uneven rolls and slit in perfectly straight lines.

Light from a small lamp passes through four small circular lenses revolving 1800 times a minute on the shaft of a synchronous motor and strikes the roll of paper as four rapidly revolving light beams. This light is then reflected back to the phototube whose resistance increases as the illumination from the paper decreases.

As long as the lgiht beam strikes only the light surface of the paper roll, the resistance of the phototube remains uniform, but as soon as the beam intercepts the dark-colored guide line on the paper roll the phototube gives a signal to a reversing motor which by means of a gear arrangement adjusts the position of the unwinding roll transversally to bring it into a straight line again.

The phototube controls the operation of the reversible motor by means of a high vacuum amplifier and sequence interlocked thyratron tubes, supplying armature voltage to the motor.

Australian Production of Paper

• Approximately 85,000 long tons (long ton = 2,240 pounds) of paper and board were manufactured in Australia during 1937, all of which was manufactured from imported pulp. The production of paper will be increased substantially and the manufacture of wood pulp will be undertaken for the first time when two new plants now in the course of construction are finished and the projected plant for the manufacture of newsprint has been erected. At present only one company in Australia is manufacturing paper. This company owns 4 mills, 3 of which are located in Melbourne or vicinity, and the fourth at Botany near Sydney. So far this company has used imported pulp exclusively. However, it is now erecting a mill near Melbourne which is expected eventually to produce between 25,000 and 30,000 tons of wood pulp annually by the sulphite process. A pilot mill, capable of producing 3,000 tons of pulp annually, has been completed and has produced some experimental lots of wood pulp in a satisfactory manner. The company will at first use this pulp in its existing paper mills, but is planning for the erection of a high speed paper mill alongside the pulp plant with a capacity of 23,000 tons of paper annually, which will come into operation at the end of 1939 or early in 1940. Office of the American Trade Commissioner, Sydney.)

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Brazilian Paper Market

• The general outlook for imported paper products from any country is not encouraging in Brazil inasmuch as there is a well developed domestic paper manufacturing industry. Practically every type of paper is now being manufactured in Brazil and while quality in most lines is inferior to that imported papers, the local product is improving rapidly and it probably will be only a question of time until all requirements in the volume line will be supplied from local manufacture.

Practically all types of writing paper with the exception of those classified as drawing and tracing papers are manufactured in Brazil. There are imported small amounts of fancy boxed writing paper and cards with envelopes, but these are only for the very limited few who are sufficiently affluent to buy and use expensive stationery. Standards in regard to writing paper are not as exacting as in the United States and the greater part of the demand is for a quite ordinary writing paper which is manufactured locally. Some of the higher Government offices use bond, linen, or other good quality writing paper which is imported, principally from the United States and Great Britain. Very thin tissue copy paper used for making copies in old fashioned presses is imported from Japan. Some of the better class ledger paper is imported, but the bulk is produced locally. Air mail stationery, while still imported to some extent, is now being produced in Brazil.

Most of the book paper here is of a type known locally as "assetindao," which can be used either for printing or as cheap writing paper. Imports in 1937 originated chiefly in the Netherlands, Germany and Norway. It might be mentioned here that the general custom is not to use as high grade paper in the printing of books as is used in the United States. Most novels, for example, are printed on a very ordinary paper and are bound in plain paper covers. For the manufacture of book papers there exist numberous plants particularly in the states of Sao Paulo and Rio de Janeiro. The quality output is not high but meets Brazilian demands. Contrary to papers used in publishing books, a large part of the paper for the better class magazines is imported although local production of this type has started.

Book, magazine and other types of paper are usually marketed through wholesale paper dealers or importers, who do business for their own account, distributing direct to the stationery stores and other outlets. Some foreign mills have resident agents selling in specified zones only. Local mills do not limit themselves or their agents or dealers to any definite sales zones. (Office of the American Commercial Attache, Rio de Janeiro.)





Mrs. Dudley Gaylord of Route 4, Box 21, Chehalis, Washington, says in her prize-winning "Span of Life" contest letter: "If every dollar spent returned as much value as the electric dollar, there would be no depression."

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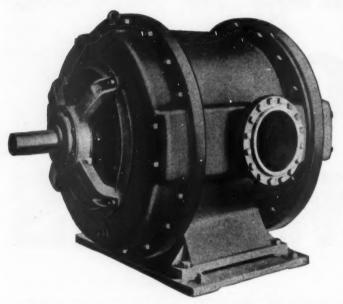
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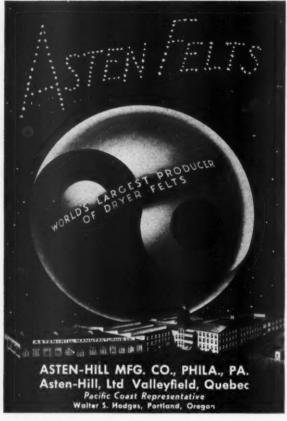
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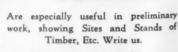


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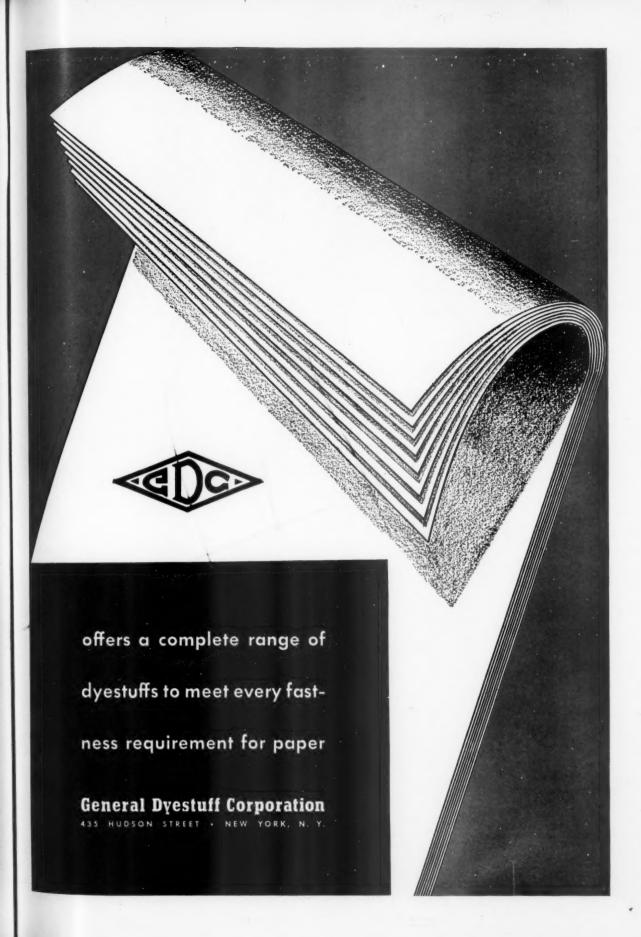
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